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TECHNOLOGY DEPT. INSIDE DOPE

by GEORGE F. TAUBENECK

Stories of the Week
All-Industry Exposition
How to Save Money
A Fate Worse Than Death
A Refrigerated Answer
Man or Mouse?
Direct Results
Guaranteed Reader Interest
Lesser of Two Evils
Give Me Land, Lots of Land
You Never Can Tell What
Will Engage the Public
Mellowed with Age
By Any Other Name—

Stories of the Week

Quite often subscribers ask us: "Where do you get all those jokes with which you always begin your front-page column?" The answer is that just as friendliness breeds friendship, so does joke-telling arouse joke-contributing. As an example: In yesterday morning's mail came this anecdote from the needs-no-introduction Harry Alter:

A new house-to-house appliance salesman started out bright and early on a Monday morning full of zip and go after completing an intensive three-week sales training course with "Luxo" Vacuum Cleaner Company. He was assigned a suburban community to canvass. So he selected one street of that community for a starter, and then knocked on the door of the first house.

Remembering his training, he politely but firmly got his foot in the door and eased himself inside the house—all of this time keeping up a steady patter on the wonders of the "Luxo Cleaner," despite the protestations of the lady-of-the-house, who couldn't get a word in edgewise. Having forced his way inside the home, he reached in his pocket, took out a paper bag and sprinkled the contents on the living room carpet. "Madame," he declaimed, "I have dumped on your beautiful rug the sweepings from a bird-cage. Be not dismayed. My wonderful machine will pick up all this offal, and not a speck or trace of it will remain on your floor. What's more, if it doesn't, I'll get right down on my hands and knees and eat it."

With that the lady of the house excused herself. She returned quickly with a bottle of ketchup.

"What's that for?" asked the salesman.

Said the lady, "You may want it—we have no electricity in this house."

All-Industry Exposition

This issue of AIR CONDITIONING & REFRIGERATION NEWS will be distributed—in excess of its sharply-rising paid circulation list—to those who attend the Fourth All-Industry Refrigeration and Air Conditioning Exposition at Cleveland.

"Inside Dope," which presents one joke a week, is grateful for the contributions which come from faithful readers, like Harry Alter. Even so, "Dope" takes an awful beating at conventions and expositions because too many people tell him the same story when they all get together. After the tenth time we've heard it, it becomes difficult to manage a faint smile.

We want to hear any new story, of course. But please don't be incensed if we indicate that we've heard it before.

This column, devoted entirely to tales, should serve as fair warning to all our well-meaning friends that we've heard these stories previously.

How to Save Money

Mr. and Mrs. Wilson were seated in the living room of their home, (Concluded on Page 16, Column 4)

2% Boost Given To Some Sellers Of Refrigerators

WASHINGTON, D. C.—OPA announced, effective Oct. 25, an increase of 2% in the ceiling price of mechanical household refrigerators sold by dealers 75% of whose dollar volume of sales was derived from the resale of a restricted commodity or commodities (which means those items that were out of production during the war).

According to OPA, this price increase will apply "only on mechanical refrigerators sold by specialty appliance dealers who account for about one-third of the total sales of refrigerators." The increase could not be applied, it seems, by department stores, furniture stores, hardware stores, and other outlets who cannot qualify as having had 75% of their sales volume on "restricted" or "reconversion" items.

The announcement said that this new interpretation of Section 2 (q) of the price control act will not require further price increases to be made on other household appliances. "In some cases peacetime margins are already being realized. On all other cases production and retail distribution has for a six-month period reached or surpassed the average annual unit sales rate during 1939 to 1941."

(Concluded on Page 4, Column 3)

'Heat Pump' Tests In Homes Planned

CHATTANOOGA, Tenn.—Reverse cycle heat pumps employing water from 200-ft. wells as the heat source will be installed in five homes here this winter belonging to officials of the Chattanooga Electric Power Board, a municipal system which purchases power from TVA.

A water temperature of 58° F. is calculated during the winter months, which will serve to evaporate the refrigerant of an air conditioning system operating on the reverse cycle. During the summer, the well water will act as the condensing medium while the refrigeration unit operates on the conventional cooling cycle for comfort air conditioning.

Engineers estimate that power requirements will be only one-fourth of that required to heat homes by radiant electric heaters. The installations will be part of a program to determine the practicability of reverse-cycle systems for year-around home air conditioning in this area.

All-Industry Show Will Raise The Curtain on Many New Products

Contractor Will Test Wage-Hour Case In Courts

By C. Dale Mericle

DETROIT—An all-important court case whose outcome may affect most refrigeration contractors is in prospect here, following a U. S. Government decision last week that the employees of a leading Detroit contractor are "covered" by the so-called "Wages & Hours" law.

In a move apparently instigated by employees of the contractor who are members of the Steamfitters union, the Detroit branch of the U. S. Department of Labor's Wage and Hour and Public Contracts Divisions has decided that virtually all the employees are subject to the Fair Labor Standards Act of 1938.

Briefly, this act sets up a minimum wage of 40 cents an hour and provides that all work performed after 40 hours in a week be paid time-and-a-half for employees engaged in interstate commerce.

(Concluded on Back Page, Column 1)

Record Steel Output May Reduce Backlogs

NEW YORK CITY—The steel situation appears to be brightening, believes Walter S. Tower, president of the American Iron & Steel Institute, who said last week that steel backlogs for some industries will soon be made up if production continues at its present record-breaking pace.

There has been a loss of more than 12,000,000 tons of finished steel because of strikes in the steel industry itself, coal, and other industries, he said, but if the August rate of production continues this loss can be made up in two-and-a-half months for washing machines, for example, he declared.

For refrigerators, however, it would require six months to make up this lost production.

Meanwhile CPA administrator John D. Small has informed small business firms that they will continue to receive priorities aid in obtaining steel under Priorities Regulation 28.

CLEVELAND—Members of "the world's fastest growing industry"—the refrigeration and air conditioning field—will pour into the Cleveland Public Auditorium by the thousands this week to see the All-Industry Refrigeration and Air Conditioning Exposition which opens Tuesday, Oct. 29 and continues through Friday, Nov. 1.

The first exhibition of such products since January, 1941, the Show promises some real "wallops" in the form of new products, new companies, and new ideas in the commercial refrigeration, air conditioning, and frozen foods fields. Several manufacturers have held back new items to "spring them" at the Show. Well over 200 firms will have exhibits, making it by far the biggest in history.

Improved Designs Indicate Better Air Conditioning

By Phil B. Redeker

DETROIT—Unless the manufacturers are holding out on some very "top secret" developments, there doesn't seem to be any industry-shaking developments in the design of air conditioning products on the immediate horizon, but there are a whole host of improvements being made which will create "better air conditioning." Comfort cooling will still be accomplished by mechanical refrigeration equipment in the vast majority of cases, and store coolers and room coolers will continue to resemble—in the immediate future at least—the products of this type which were in use before the war.

That's the conclusion reached after a review of the new equipment being introduced, and a discussion with (Concluded on Page 4, Column 1)

Seller's Market Ending? You Can Get Arguments on Both Sides

By Phil B. Redeker and Jack Sweet

DETROIT—The burning question of whether or not the seller's market in refrigerators, appliances, home freezers, and refrigeration equipment is giving way to a buyer's market is one of those "you pays your money, and you takes your choice" deals. A recent trip through the east and some investigation around some of the midwestern metropolitan centers turned up some arguments for both a "yes" and a "no" on the question.

Here's some of the principal arguments to uphold the theory that the seller's market is still here:

(1) Dealers for the most part are still four to six months behind in filling orders for refrigerators—and in the vast majority of cases, the people who ordered them originally are snapping them up whenever their number comes up.

(2) There doesn't seem to be any difficulty on the part of dealers in getting rid of home freezers—when they're available.

(3) Every commercial refrigeration dealer contacted was begging for enough condensing units—and not for inventory purposes.

The other side of the picture—contending that the seller's market is vanishing—came mostly in isolated cases, small straws in the wind. Like the commercial refrigerator dealer who said:

"Last week was the first time in five years that a prospect said to me 'this is what I'll give you for the job, take it or leave it' and I took it."

And the refrigeration service man who reported:

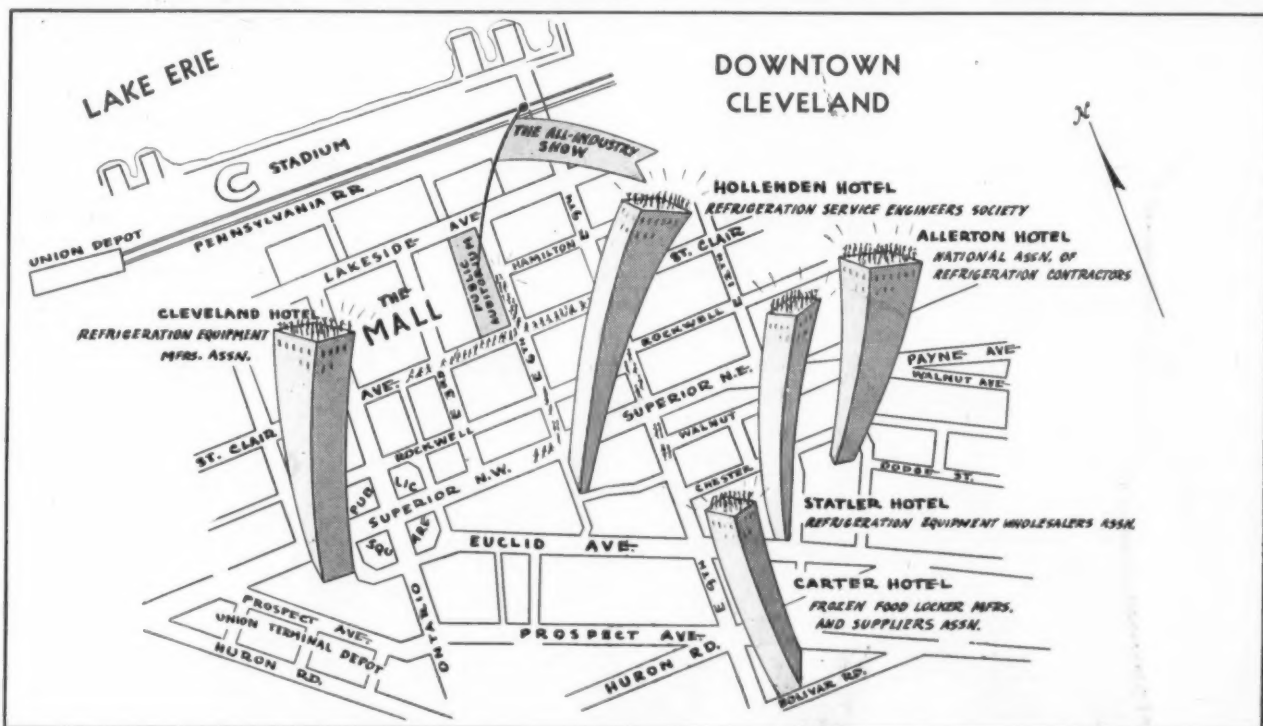
"When I came in last Saturday night, I found three calls waiting for me. When I checked back of them by phone I found that in each case another service man had been called, and had taken the job. That's the first time that's happened since before the war."

That's the picture generally. Here's a few specific cases:

No difficulty at all has been experienced by R. H. Macy & Co., famed New York department store, in selling home freezers to New Yorkers, according to George Mortland, sales manager of appliances.

In Torrington, Conn., customers who asked one dealer for standard-size refrigerators in April are now getting them, but orders taken in January for a larger size still are (Concluded on Page 2, Column 4)

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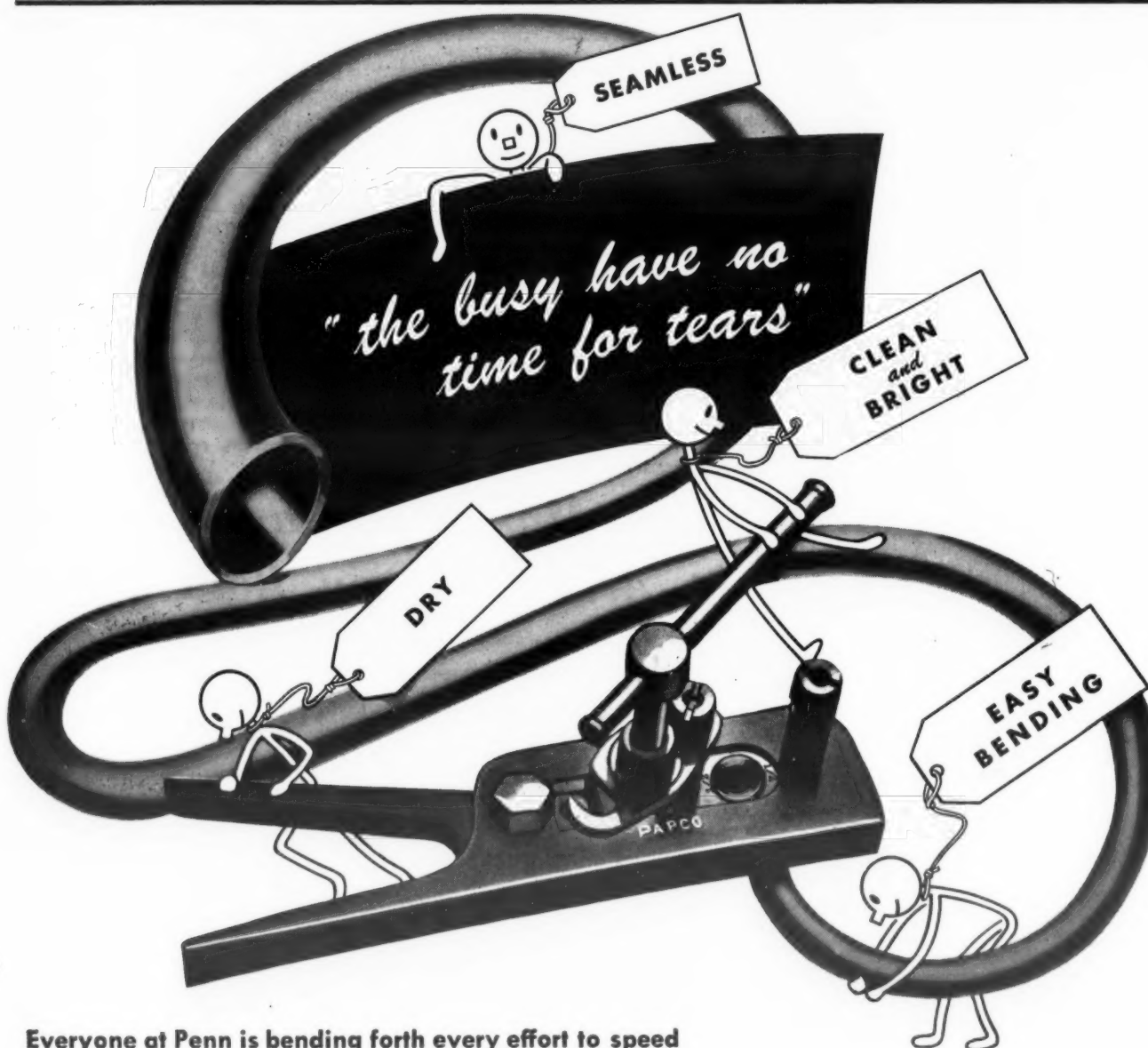
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'Scoreboard' Gives Story Item-by-Item

STERN'S SCARCE MERCHANDISE TIMETABLE	
ELECTRIC REFRIGERATORS	TEMPORILY SOLD OUT
RADIOS & PHONOGRAPHS	ON SALE NOW
ELECTRIC WASHERS	TEMPORILY SOLD OUT
ELECTRIC IRONERS	ON SALE NOW
VACUUM CLEANERS	ON SALE NOW
TIRES & TUBES	TEMPORILY SOLD OUT
GAS RANGES	TEMPORILY SOLD OUT
RUGS & BROADLOOM	ON SALE NOW
DEEP FREEZE UNITS	TEMPORILY SOLD OUT

Stern's Lancaster (Pa.) store hit upon this unusual window display to keep disappointed scarce-merchandise shoppers interested. Manager Milton Green said the timetable, first set up last Spring, turned out to be such a "hot" idea that he decided against removing it. The store, one of an Eastern chain, sells on a first-come, first-served basis. (Note to readers who spot the misspelled word: Stern's is aware that its sign painter needs a lesson in spelling.)

Seller's Market Ending?

(Concluded from Page 1)

unfilled. This dealer said he could have 30 or 40 home freezer orders if he wanted to put them on the books.

How far most major appliances are from a buyer's market seems to be evident from the statements of practically all dealers that they started out accepting orders freely but were forced to adopt some method to prevent lists from getting out of hand. The means resorted to include requiring deposits, deposits plus priority contracts, and even refusal to take orders until prior commitments are satisfied.

This last-named action had to be taken by Pete's Auto & Appliance Co. in New Haven, Conn., when more than 200 orders were listed during the recent four-day opening of its enlarged and modernized store. This firm originally accepted deposits but discontinued the practice when too many householders were willing to leave them.

There seems to be no middle ground, incidentally, on the respective merits of the straight rotation and deposit systems of handling consumer orders. Dealers are either firmly for or against.

Deposit 'Like a Contract'

Harry H. Landis, owner of Lancaster's Landis Electric, for instance, enthusiastically declared that adoption of the deposit-contract method was "the best thing we've found yet."

"The other way will drive you nuts," he elaborated, explaining that it had eliminated confusion and many "headaches," served to assure customers that friends of the dealer would not be slipped in ahead of them, and made it easier to keep patrons on the waiting list.

He likened this method to old-time selling, "selling up to something they sign."

"When we get a deposit and have a contract signed," he said, "we feel we've really made a sale. The way we feel now, we'll probably use this system all next year."

(The priority agreement employed by Landis Electric, incidentally, was modeled after one reproduced in the News earlier in the year. Under Landis' plan, \$20 is required on most major appliances; \$10 on washers, when the firm can get them.)

To scare off "shoppers," N. C. Martin, proprietor of an outlet in Lancaster, asks for a \$10 deposit with the understanding that it will not be refunded. He contacts 10 to 15 patrons at a time, when he can

talk in terms of approximate delivery dates, and allows them 10 days in which to come to the store to make final arrangements before passing on to the next names.

New Commercial Markets

The Hartford, Conn., Refrigeration Service, which will soon move into new \$25,000 headquarters on John St., along with its affiliated companies, Hartford Refrigeration Sales and The Tavern Equipment Co., is demonstrating how a commercial dealer can top new fields effectively.

It reports a fairly booming business in beer-dispensing units, many of which are sold on the meter plan, and it has some locker-plant jobs in the area to its credit. A recent contract with Commodity Cold Storage Co., Inc., in West Hartford involves installation of equipment in a plant which will eventually contain 2,000 lockers and cost approximately \$80,000.

Another project soon to be undertaken for G. F. Heublein & Bros., Inc., is the installation of refrigeration equipment to cool two 5,000-gallon vats of wine. Early this year, Hartford Refrigeration equipped a local storage plant that has a capacity of between three and four carloads of frozen foods.

Over in Utica, N. Y., Averill-Mangan Fixture Co., Inc., tells how the installation of open-type frozen food cases in area markets has stimulated frozen food sales. The owner of a market in Little Falls told Averill-Mangan that he sold more frozen foods the first day the case was installed than in any previous week, and the proprietor of a Utica market said he "was never really in the frozen food business" until he got one. Several other cases also were put in these and other markets.

Too Much High Pressure?

Sales promotion managers might be interested in the comment of one distributor who has recently dropped a nationally known product. He said he will henceforth represent only one high-pressure manufacturer, because otherwise he would have time for nothing but promotional activities of one sort or another.

And one more: N. C. Martin (also Lancaster) is building up his stock of trade-ins to be ready for the dull season ahead. Don't buy parts for reconditioning, he advises, until you see what is needed after dismantling the "junk"—"anything over 10 years old."

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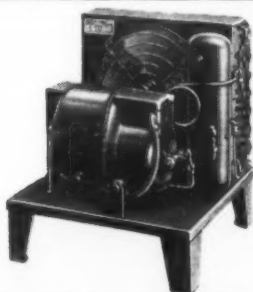
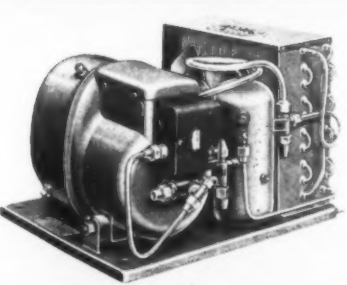
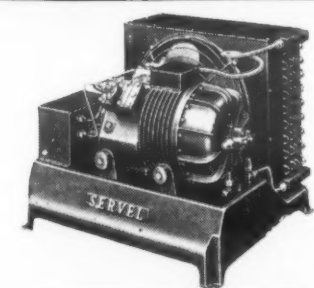
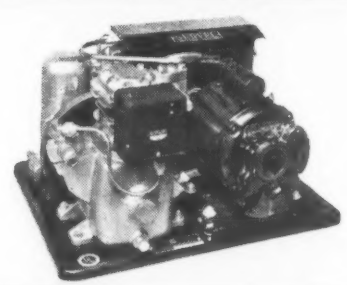
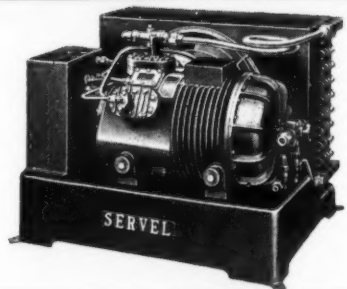
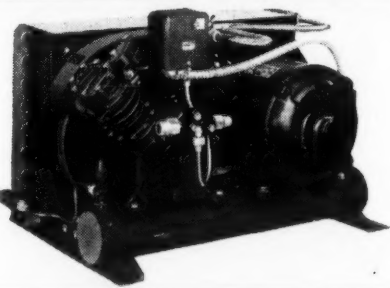
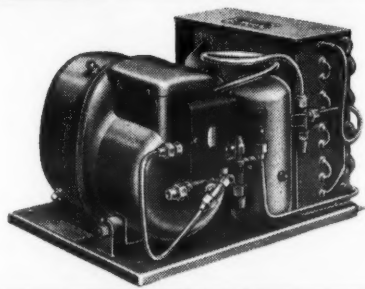
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Air Conditioning --

(Concluded from Page 1, Column 4) some of the industry's research and engineering talent.

A considerable amount of experimental work is going on in an effort to cut the size, weight, and cost of unitary equipment, in particular. One that may hold some promise is the development of high-speed compressors.

One manufacturer is said to have operated refrigeration compressors successfully at speeds up to 4,000 r.p.m., and others are said to have carried out experiments at speeds approaching that figure. It is understood that with the finely machined surfaces characteristic of compressor manufacture, there has been almost no extra wear revealed in operation at these speeds.

Engineers and production men don't wax very enthusiastic over the possibilities of producing complete compressor assemblies from any of the "light metals."

The line of store conditioners being

introduced by General Engineering & Mfg. Co., however, is equipped with a compressor constructed almost entirely of heat-treated aluminum alloy.

A definite trend to the hermetic condensing unit in unitary air conditioning equipment is generally acknowledged by all, however, and it is felt that this trend will make itself felt more rapidly in the air conditioning field than in the commercial refrigeration field. Hermetics up through 5 hp., at least, will be the rule before too long, it is believed.

Rumor Early Decontrol Of Service Ceiling

WASHINGTON, D. C.—There are some rumors going the rounds here that among the price orders that may be swept off the boards soon in the flurry of decontrol activity is Price Regulation 165.

(Prices on charges for the repair and maintenance of mechanical refrigeration equipment and appliances are covered by this order.)

2% Refrigerator Price Boost For Some--

(Concluded from Page 1, Column 2)

Dealers who feel they qualify to make the refrigerator price increase will do their own price raising, which OPA hints will be subject to "verification." Following is the procedure as outlined in the announcement:

Refrigeration manufacturers will continue to pre-ticket their refrigerators with the retail ceilings in effect before this action was taken.

Appliance dealers who qualify for the increase are required to add a label stating the increased price they will take under this action.

To permit verification of the appliance dealer's calculation, removal of the manufacturer's original price tag is prohibited.

Following is the text of the official OPA announcement on the increase: "Retail ceilings on household mechanical refrigerators sold by appliance dealers have been raised 2% or from \$209.50 to \$213.75 on a typical 7-cu. ft. box, OPA announced today.

The increase is in compliance with the provision of the new price control act that requires restoration of normal peacetime margins to certain resellers and will apply only on mechanical refrigerators sold by specialty appliance dealers who account for about one third of total sales of refrigerators.

"The action, effective Oct. 25 has been on the basis of a reconsideration of the requirements of Sec. 2(q) of PCEA of 1946. In an Aug. 15 announcement OPA stated that this section, known as the 'auto dealers' amendment,' would not require the restoration of peacetime percentage margins or markups on such household appliances as refrigerators, vacuum cleaners, washing machines, and small electrical appliances because the sales of these articles did not make up the principal sales volume of the retail industry which sells these products.

"OPA considered that all dealers in household appliances constituted a retail industry. Today's action gives separate treatment to particular types of sellers, such as appliance dealers whose principal sales were of restricted commodities.

"Appliance dealers' margins on refrigerators are lower than peacetime margins because of the absorption which was required of them in October, 1945. Today's action restores to such resellers their average prewar margins.

"Following the criteria set forth under sec. 2(q) of the new price control act, restricted commodities (commodities whose output was reduced during the war because of conversion to war production) account for the principal sales of appliance dealers.

"Appliance dealers are defined as those persons 75% of whose dollar volume of sales was derived from the resale of a restricted commodity or commodities.

"The production and distribution of many household appliances including mechanical refrigerators were re-

duced for a period of three years after March 2, 1942, by 75% or more below such production or retail distribution for the years 1939 to 1941 inclusive.

"The production and retail distribution of mechanical refrigerators has not for a six month period reached or surpassed the average unit sales rate at which they were produced or distributed during the years 1939 to 1941. Accordingly, the restoration of appliance dealers' average peacetime percentage margins is required.

"Section 2 (q) of the new price control act will not require further price increases to be made on other household appliances. In some cases peacetime margins are already being realized. On all other cases production and retail distribution has for a six-month period reached or surpassed the average annual unit sales rate during 1939 to 1941, the OPA said.

"Refrigerator manufacturers will continue preticketing their boxes with retail ceilings in effect before today's measure. Appliance dealers that qualify for today's increase will be required to add a label stating the increased price they will take under this action. To permit verification of the 'appliance dealer's' calculation, removal of the manufacturer's original price tag is prohibited. Manufacturers and distributors will be responsible for notifying all resellers of the provisions of today's orders."

(Order 22 to MPR 598—Ceiling Prices for Sales by Appliance Dealers—effective Oct. 25, 1946.)

U. S. Figures Reveal No Refrigeration Hoarding

WASHINGTON, D. C.—In the first half of 1946 a total of 838,000 household mechanical refrigerators was manufactured, according to the U. S. Department of Commerce. Shipments during the same period totaled 821,000, a figure which refutes charges made in the past year that manufacturers have been hoarding refrigerators to await an OPA price increase.

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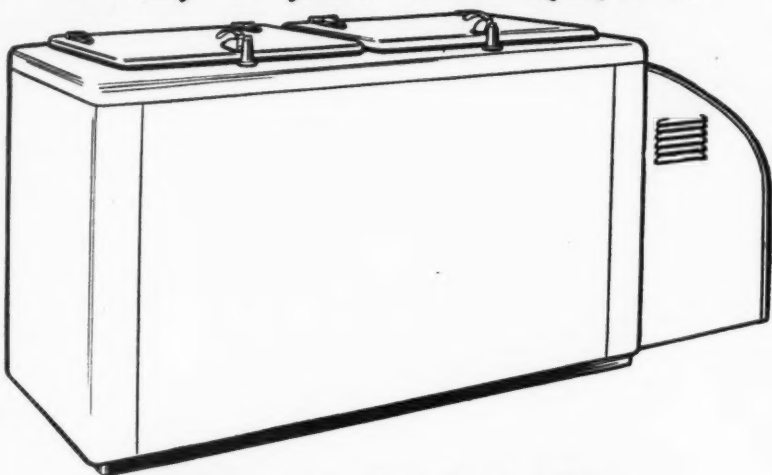
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California Refrigeration Groups Will Ask Legislature for New Code, Stricter Licensing

SAN FRANCISCO—All organized refrigeration associations will present a united demand on the California state legislature for a new state code and a stricter written examination for a refrigeration specialist license. This unity became apparent as the California Association of Refrigeration Service Engineers society directors voted to cooperate with other state groups seeking reform of the licensing laws.

The CARSES directors agreed to join forces with the Refrigeration Contractors associations of Northern California and of Los Angeles and appointed a committee to draw up a specimen set of questions to be submitted to the state licensing authority. Association President W. W. Allison of Los Angeles named the following committee: Rowland F. Cooke, Westlund & Cooke Co., San Francisco; Everett F. Brown, Brown and Brown, Compton; and A. H. Brundage, Brundage-Neill Co., Fresno.

By unanimous vote, the directors petitioned for a change in the international constitution which would transfer authority over members-at-large living within a 35-mile radius of established chapters from the international body to the local chapter. This proposition is expected to be considered at the next meeting of the international directors at Cleveland in October. William C. Irving of Santa Monica was elected official delegate to that meeting.

It was also decided to hold the next

annual meeting April 25-27 at Long Beach. The next meeting of the state board was set for January 4-5 at Sacramento. Sole social activity for the entire group was a luncheon Saturday to which all the wives who accompanied their husbands were invited.

Directors present, in addition to those already named, were: Gerald S. Kennedy, Sacramento, secretary; Lloyd O. Thomas, Gilroy Refrigeration Service, Gilroy, assistant secretary; M. R. Hanks, Abderon Refrigeration Service, San Diego, treasurer;

John Geringer, Conditioned Air & Refrigeration Co., Fresno; Ralph L. French, French, Hermes & Thomas, Inc., San Diego; Lem V. Brannon, California Refrigerator Co., San Francisco; Richard M. Oeberst, York Pacific Co., Sacramento; Norman H. Overwieser, Norman Refrigeration Co., Salinas; J. Pat Riley, Riley Refrigeration Service, Long Beach; and James C. Rodgers, Peerless Refrigeration Service, Los Angeles. Mrs. G. S. Kennedy acted as recording secretary.

More Restrictive Rules Announced by CPA For Veteran's 'New Business' Priorities

WASHINGTON, D. C.—To prevent non-veteran businesses from using veterans as a front to obtain preference ratings for scarce equipment, the Civilian Production Administration has directed that CC ratings may be issued to veterans starting new businesses only under all of the following circumstances:

1. The veteran, or group of veterans, will actively control the business by having at least 50% interest in the profits and by all being actively engaged in the operation of the business.
2. The equipment will be installed in premises which the veterans (or corporations or partnership they control) own or lease, or have made definite arrangements to buy or lease.
3. The premises where the equipment is installed are separate from the premises of any established business in the same line.

Whenever a person uses such a CC rating, he must state in writing on his purchase order (in addition to the certification required by PR 3) that the rating was assigned under Direction 20 to PR 28, the agency has ruled.

Direction 20 covers the aforementioned requirements. PR 28 allows

priorities for veterans who seek to establish new businesses.

No person may use a CC rating assigned under the direction to get machinery or equipment, except under the conditions described above, C.P.A. declared.

Where such conditions change after the assignment of the CC rating, the person to whom the rating was assigned must immediately cancel any use of the rating and return his authorization to the C.P.A.

Any item obtained with a rating assigned under the direction may not be sold or otherwise disposed of within three months after it is received, unless specifically authorized by C.P.A., the new ruling says.

The agency reserves the right to grant exceptions to this direction. Requests for exceptions must be made by letter, in duplicate, to special assistance division, C.P.A. Washington 25, D. C.

They must describe, the agency said, the special circumstances which are the basis for requesting the exception, and indicate the steps which the veteran will take to prevent the diversion of the new equipment to sources not eligible for priorities assistance.

Motor Manufacturer Offers 'Styling Service' To Fit Product Into Customer's 'Scheme of Design'

OWOSSO, Mich. — An innovation among electric motor manufacturers is the new Redmond "styling service" offered without cost to users of Redmond "Micromotors."

Recognizing that attractive styling is essential for effective merchandising of products powered by Redmond motors, the company has retained the services of a styling organization, Bruce Kamp Associates, with offices in Philadelphia and New York. Advanced styling is now available to every Redmond customer.

The service includes product design, styling, colors, materials, and packaging. When a customer applies for Redmond styling service a Red-

mond engineer is assigned to the project. It is his job to determine if the Redmond product has been adapted to obtain best results and, if considered advisable, recommends improvements. The Redmond engineer then places the project in the hands of Bruce Kamp Associates for styling.

A thorough study is made by Bruce Kamp Associates, from the standpoint of functional design as well as appearance. Proposed ideas and color drawings are prepared, together with explanatory notes. The proposals are then returned to Redmond for final approval by engineers before submitting to the customer.

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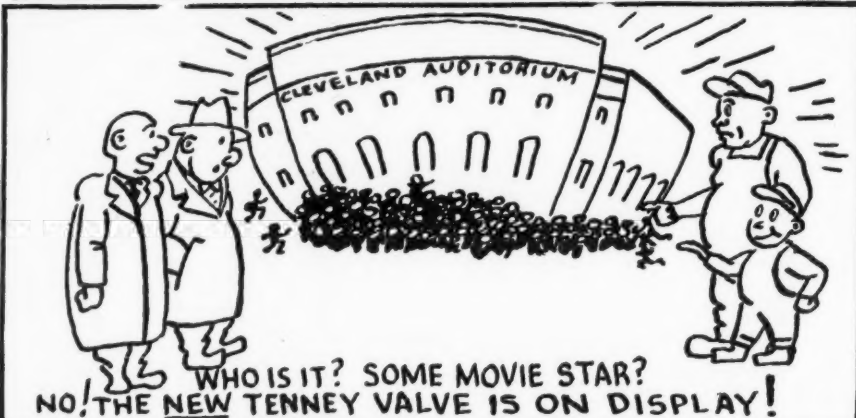
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Program of NARC Convention During Exposition Week

(All Meetings at Allerton Hotel)

Monday, Oct. 28

All day—Registration.

9:30 a.m. to 12:30 p.m.—General meeting. President's report. Treasurer's report.

"Is Licensing the Answer?" an address by Raymond J. Shock, executive secretary, Refrigeration Contractors Association, Detroit.

"What N.A.R.C. Means to Refrigeration Contractors," by Ed Wright of Youngstown, Ohio, recording secretary of N.A.R.C.

Tuesday, Oct. 29

9:30 a.m. to 12:30 p.m.—

"Unfair Trade Practices," a talk by Z. E. Jones, San Francisco.

"Why Get Together Locally? How to Operate a Local Association," by N. S. Templin, Los Angeles.

Reports of committees on trade relations, government surplus, labor relations, legislative, membership, publicity, and finance.

Election of six directors and amendments to constitution and by-laws.

12:30 p.m.—Luncheon. Open to all contractors, guests, and ladies.

6:00 p.m.—Board of director's dinner and meeting.

Problems of Commercial Outlets Attacked By New Group of 'Food Equipment Dealers'

Large Dairy Promises to Stop 'Underselling'; Hear Ed Wright on Contractors' Program

By C. Dale Mericle

DETROIT—"A refrigeration service man who has been calling on a grocer once a month for several years to service his meat case is the man whom the grocer will first think of when he decides to buy a new case. What's going to happen to the refrigerated fixture dealer on a deal like that?"

That question, asked by a member at the monthly meeting last week, is typical of the many problems which the Food Equipment Dealers Association here hopes to solve.

Organized some months ago, this group aims to include all dealers handling anything that pertains to the merchandising of food, such as scales, meat grinders, wrapping materials, cash registers, and a host of other items, but commercial refrigeration dealers are predominate in the association. Its membership, still somewhat small, is not confined to Detroit, and at present a drive for outstate members is underway.

Sparked by a talk by Ed Wright of Youngstown, Ohio, recording secretary of the National Association of Refrigeration Contractors, members not only discussed the problem mentioned above, but touched on such phases of operations as alleged competition by parts and equipment wholesalers—a problem which the association expects to air thoroughly in future meetings, along with kindred matters.

One accomplishment of the group cited at the meeting concerned the alleged underselling of a refrigerated fixture by a large dairy to a store operator. Members of the Food Equipment Dealers Association had charged that the dairy had sold the fixture at slightly above cost—far below the price a fixture dealer would have to obtain.

A committee of the association protested to officials of the dairy, who promised that if these allegations proved to be true, the matter would be taken up with the salesman in question and the practice stopped.

With regard to the charges made by some of the members that some refrigeration equipment wholesalers are competing with the fixture dealers by selling direct to "almost anyone," the association hopes that a discussion with the wholesalers will clear this matter up.

Many of the members, however, pointed out that they owed much of their success in business to the help given them by these wholesalers in the past, especially when they were first starting up their firms.

Throughout his talk, Mr. Wright emphasized the advantages that can accrue to a group by working together in a strong association.

"Today it's pressure groups all the way down the line, and it takes a group to fight a group," he declared.

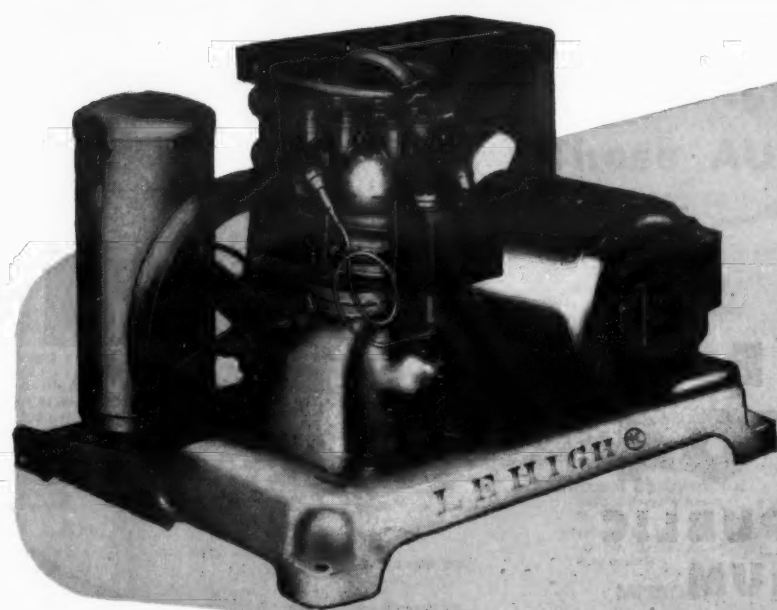
By working in a strong group, for example, fixture dealers or contractors could perhaps determine their own selling quotas rather than have the manufacturers set these up, said Mr. Wright.

"Isn't it just about time that we men who have invested our money in a business in our locality, and live in that locality, start telling the manufacturers what our quotas should be, instead of the manufacturers telling us?" he queried.

This would require knowledge of how to determine the sales potential of any market, but a large association with adequate financial backing could perform this service for the individual dealer, he explained.

Similarly, such a group might be able to change the clause in some dealer franchises which permits the manufacturer to cancel the franchise with as little as a 30-day notice, he said.

I. Wolf of McCray Refrigerator Co., Detroit, is president of the Food Equipment Dealers Association; Lee Hayes of Detroit Refrigerator Mfg. Co. is vice president, and Raymond M. Shock, Detroit attorney long active in association affairs, is secretary-treasurer.



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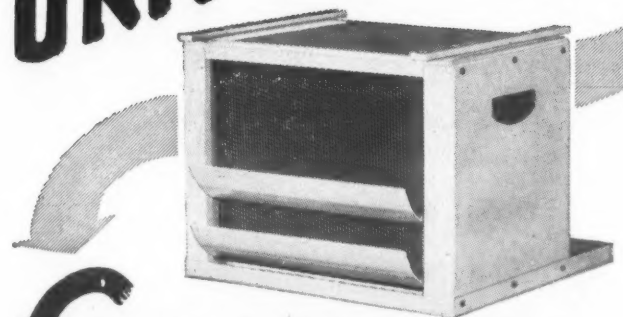
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Spoehrer Explains Why 'Our Industry' Is the Fastest Growing in the Nation

In the following message, H. F. Spoehrer, head of the organization sponsoring the All-Industry Show, tells why this exhibition is the largest in industry history and why refrigeration and air conditioning constitute the "Fastest Growing Big Industry in the World."

By H. F. Spoehrer, Vice President, Sporlan Valve Co., and President, Refrigeration Equipment Manufacturers Association

During the war, a single word gave the mechanical refrigeration industry its first real national recognition. That word was *essential*.

We all know what happened. Our manufacturers were granted high priorities on materials because refrigeration equipment was declared essential in the preservation of the nation's food supply. As the war progressed, that word *essential* was fully justified.

Nowadays, people know that mechanical refrigeration is just as essential in peace as it was in war. They know that refrigeration is both vital and necessary in the modern way of living, and they know that without refrigeration in our homes and stores and warehouses and industries much of our food and many of our comforts and conveniences would be impossible to obtain.

But even *essential* scarcely describes our industry today. We all regard mechanical refrigeration and air conditioning as a big industry and an important one. We read interesting headlines that deal with frozen foods and cold treating steel

and air conditioned ships and planes. We are intrigued with news of refrigeration in the production of penicillin and how refrigeration helped produce the atom bomb. We hear the experts say that 10 years from now, 65% of all perishable food will be preserved by freezing.

With the industry's progress highlighted in so many different ways, it sometimes is difficult to gain a true perspective of our real growth and expansion since prewar days. But out of the jumble of figures and statistics, of delays and shortages that have made postwar production and planning so difficult, various facts and indications have emerged to tell something of the true story of the mechanical refrigeration and air conditioning industry as it stands today—the fastest growing major industry in the country.

PERFORM 200 ESSENTIAL SERVICES

It now is estimated that refrigeration and air conditioning perform more than 200 essential services. Even so-called "typical" uses of re-

frigeration, compiled to show our industry's job ranges from temperatures of 80° above zero to 150° below zero and colder, shows 34 applications.

Other statistics show that at least 31 principal industries regard air conditioning as an essential in controlling temperature and humidity as an aid to manufacturing processes. These include chemical, textiles, food, metal working, synthetic rubber, printing, tobacco and aircraft—all industrial leaders.

Truly big figures are being used to estimate both the immediate and future markets for refrigeration and air conditioning equipment. The market for new home refrigerators is expected to continue at boom levels for five to 10 years, with 5,000,000 to 7,000,000 new refrigerators in immediate demand. The Rural Electrification Administration estimates that an additional 1,329,000 farms will be receiving electrical service by 1949, and that alone justified sales optimism in the farm field.

Right along with the demand for home refrigerators is the unusual market for home and farm freezers and frozen food storage cabinets. Market estimates range from 300,000 home freezers during the next year to 1,000,000 "as soon as they can be produced." Certainly, the zooming popularity of frozen foods is being felt everywhere, with the demand for



REMA President H. F. Spoehrer (right) checks over show plans with K. B. Thorndike, All-Industry Exposition chairman.

commercial units—store and restaurant equipment, refrigerated trucks and trailers, and food freezing and packaging equipment—paralleling the market for home units.

NEED REFRIGERATED TRUCKS

We find many other indications of the growth in the frozen food business. In 1945, there were approximately 250 frozen food locker plants in the United States. Today, there are more than 8,000, and it is believed that more than 1,000 new plants will be built each year for the next several years.

At the close of 1941, there were only 27,100 refrigerated trucks in service in the United States, only a fraction of one per cent of the total trucks with direct mounted bodies.

In the trailer classification, there were only about 4,700 refrigerated vehicles, and today there is said to be an immediate need for 4,000 more refrigerated trailers. So great is the demand for refrigerated transportation that even automotive trade

papers are urging truck and trailer companies to cultivate this market.

When we consider the field for air conditioning we encounter more big figures. The immediate potential market for air conditioning equipment is estimated at \$1,000,000,000. One authority estimates that within 10 years the aggregate value of air conditioning equipment in use will be in excess of \$2,000,000,000 and once that point has been reached, replacement and service needs alone should total about \$350,000,000 annually.

Are these estimates justified? Going back to prewar years, we find that from 1932 to 1941, the volume of air conditioning equipment jumped from \$8,363,000 to \$95,000,000 per year, an increase of 1,035%, and an increase unequaled in similar periods of growth in such industries as the electric refrigerator, automobile, radio, electric washing machine and electric range.

CONDITIONING FUTURE ROSY

Several national surveys indicate that it will be as many as 15 to 20 years, before the saturation point in air conditioning will be reached. Utility reports on installations indicate that less than 1% of homes valued at more than \$12,000 have air conditioning. Only 3% of the department stores, 3% of the doctors' and dentists' offices, 2% of the drug stores, 7% of the restaurants, 13% of the theaters, and 30% of the railroad cars were air conditioned before the war.

Then, many other markets for air conditioned equipment have barely been tapped. For instance, air conditioning is an obvious asset to beauty shops, yet less than 1% of the 122,000 beauty shops in the nation have air conditioning. There is a \$100,000,000 market for air conditioning equipment in small retail stores, according to sales analyses, and only 1,200 of the country's 25,000 hotels have any type of air conditioning.

FIELDS FOR AIR CONDITIONED TRANSPORT

In the field of sports, there is evidence that air conditioned bowling alleys will further establish bowling as the country's No. 1 sport because it will be a year-round activity. Then, we can talk about year-round outdoor skating rinks, or the vast field of air conditioned transportation or the fact that the steady rise in the consumption of milk, butter, ice cream, cheese, eggs, and other dairy products requires additional refrigeration machinery for processing, manufacturing, transportation, storage, and distribution. Think of the thousands of tons of refrigeration that are needed right now to keep 30,000,000 gallons of milk per day.

Each field our industry covers or will cover has its separate individual story, and it is the sum total of these stories that will make the complete history of the industry's progress. To repeat a phrase that is being used more and more, the title of such a history could well be "The Fastest Growing Big Industry in the World."

Nevertheless, progress is being made, and there are bright spots all along the production horizon. In the first six months of this year, shipments of home refrigerators totaled 837,000 units—a sizeable volume, though 55% below the 1940-41 figure. But production rose from a low of 67,000 units in February to 210,000 in June despite delays and shortages, and even some of the big companies have now pushed output well above their pre-strike levels.

All in all, it would appear that the industry now is operating at about half its capacity, and prewar levels are being reached and surpassed in many factories. But it isn't the prewar total at which we're shooting. We have every reason to think our industry's "normal" today is two to three times greater than prewar, and with ample materials and uninterrupted production, there is no reason why this increase can't easily be realized.

**For Safe and Profitable Hauling of—
Frozen Food • Frozen Vegetables • Frozen Meats
Frozen Fruits • Frozen Fish and All Perishables**

NOW . . . you can handle frozen-foods in absolute SAFETY! . . . at the CONSTANT ZERO or lower temperatures consistently maintained by Dorsey Z-RO Transport.

Every detail of Dorsey Z-RO Transport has been thoroughly engineered . . . and thoroughly tested . . . to provide safe, economical, and efficient handling of frozen foods and all other perishables at any desired temperature between —15°F and +70°F, with accurate automatic maintenance of the temperature at the value desired

When you think of hauling perishables or frozen foods . . . when you think of any low-temperature haul . . . think of Dorsey Z-RO Transport!

Dorsey Z-RO Transports Are Readily Available! Ask Your Nearby Dorsey Dealer for Full Particulars . . . Today!

throughout the trip, with less than 5° variation regardless of outside weather conditions.

Dorsey Z-RO Transport is available as a COMPLETELY PACKAGED UNIT . . . ready for the road . . . in 24 to 32-foot lengths, fully insulated, all refrigeration installed, on single or tandem-axle chassis equipped with the famous Dorsey tubular axles and Dorsey constant-lift cam-type brakes. Capacities from 950 cu. ft. to 1,285 cu. ft.

DORSEY

DORSEY TRAILERS

ELBA, ALABAMA, U. S. A.
MODERN DESIGNED TRANSPORTATION

IT'S TYLER

FOR FOOD REFRIGERATION



● **IN THE STORE!** Tyler Refrigerated Display Cases
Illustrated: Frozen Foods Display Case • Walk-In Cooler • Meat Display Case



● **IN THE HOME!** Tyler Harder-Freez Home Locker
Illustrated: Chest Model — 12 cubic foot capacity.

**TYLER'S
TOPS!**

FIRST to use welded steel construction in the commercial refrigerator field! **First** to use assembly line production methods! **First** to develop steel-clad, Sectional Coolers! **First** to develop Open, Self-service Frozen Foods Display Cases!

A great record—and important because the same progressive, pioneering spirit that inspired these and other Tyler firsts is now driving Tyler and Tyler AGENTS on to a more ambitious and more profitable future.

TWO GREAT LINES

Outstanding feature of the new program is the fact that Tyler AGENTS now have two complete lines to merchandise — the complete, out-front, always-improving Tyler commercial line, and the growing Tyler Harder-Freez Home Locker line.

This means new work, and new opportunities for Tyler AGENTS. To reap the harvest ahead Tyler AGENTS are establishing and training new SUB-AGENTS. They are strengthening their already strong service facilities, and gearing up generally to tap the rich home and farm freezer fields—in addition to all types of food stores and markets, restaurants, hotels, institutions, locker plants and frozen foods stores, bakeries, florists, bars and taverns.

Three great Tyler plants—at Niles, Michigan, Cobleskill, New York, and Waxahachie, Texas—are turning out the finest food refrigeration line in our history.

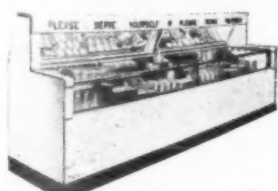
AGGRESSIVE NATIONAL ADVERTISING

Also of major importance in the new program is the fact that the Tyler name and Tyler products are being promoted through national consumer magazines reaching farmers, sportsmen, housewives, merchants of all kinds and consumers generally. This national advertising campaign is being increased in size of advertisements and in scope — in 1947 over 95,000,000 separate impressions will be made.

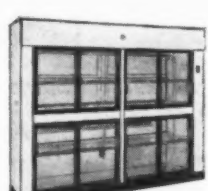
SUB-AGENCIES AVAILABLE — WRITE TODAY!

In many territories SUB-AGENCIES are still available for progressive refrigeration, appliance, farm implement and other outlets with creative selling facilities. Write today for complete information on Tyler and the two great Tyler lines, or contact your Tyler AGENT.

TYLER FIXTURE CORPORATION
NILES, MICHIGAN



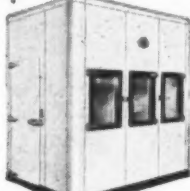
Tyler Open, Self-Service
Meat and Dairy Cases



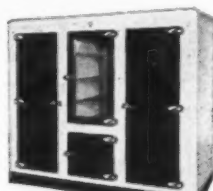
Wall Dairy Refrigerators



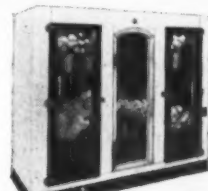
Reach-In Boxes



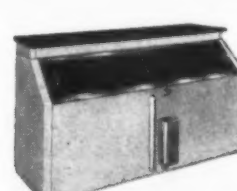
Walk-In Coolers



Dough Retarders



Florists Refrigerators
and Coolers



Dry Beverage Coolers and
Beer Dispensers



Upright Model —
Harder-Freez Home Lockers

What's New

Superstructure Aids In Selling Frozen Foods



Jordon's illuminated superstructure mounted on frozen food cabinet.

PHILADELPHIA—Jordon Refrigerator Co. here announces two new products: a 65-cu. ft. reach-in refrigerator and an illuminated superstructure for self-service frozen food departments.

The reach-in, Model R-65-L, includes as standard equipment two rows of meat rails and hooks in one of the five compartments and the Jordon "Climatic Conditioning" unit. This unit, according to the company, is the new type coil developed by Jordon engineers that, under test,

"has provided more efficient and trouble-free operation than ordinary types of coils."

Marketed as Model SS 64, the superstructure is a separate piece of equipment designed to be attached to a frozen food case or used in other store and window displays. A full-length mirror is said to reflect clearly the contents of a case.

Jordon describes the item as "brilliantly illuminated by a fluorescent lighting system and finished in an attractive, high-baked white enamel."

Stainless Steel Coils Feature Beer Cooler

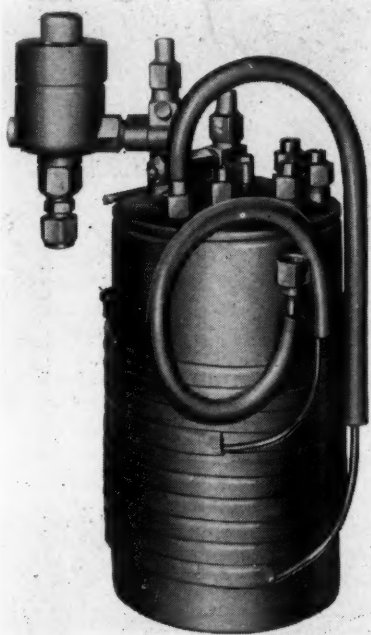
DETROIT—A new model draft beer cooler, equipped with stainless steel beer coils that are said to impart no undesirable reaction to the beer from the time of installation, is now being manufactured by Temprite Products Corp. here.

Beer will not become clouded upon contact with new stainless steel, the company contends, thus making it unnecessary for a protective "beer-stone" to form on the inside of the coils.

Possessing a high degree of tensile strength, stainless steel presents a uniformly smooth surface, is virtually non-porous, and is easy to keep clean, Temprite adds.

Operating on a principle of direct heat transfer, the beer cooler is equipped with an internal low-side float valve refrigerant feed and a

Temprite Beer Cooler



Temprite draft beer cooler.

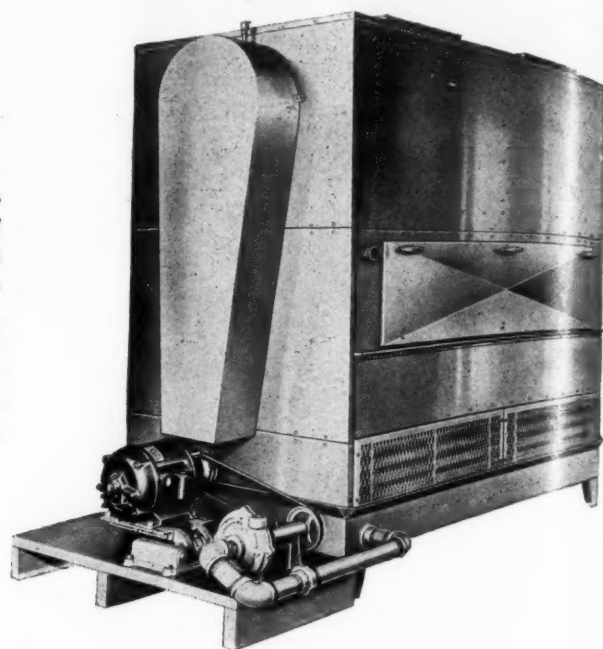
constant pressure temperature control valve.

Temperature control will maintain a uniform 40° F. at the heaviest loads, according to company engineers.

The cooler will draw up to three different brands of beer plus sweet water and soda water, all cooled at the same time, the company says. Water coils are made of hot tinned, dipped copper.

Two models, one 8 in. in diameter by 15 1/2 in., overall height and the other 8 in. in diameter by 18 in. overall height, are available.

Marlo Coil Co. claims that its new line of cooling towers shown at right combines the merits of the three conventional designs: deck, spray, and fan types. The line ranges from 3 to 50 tons capacity.



Acme Water Chiller Has New Head Design

JACKSON, Mich. — Featuring a new and improved head design, a new model direct expansion water chiller has been developed by Acme Industries, Inc., here.

Known as the Model DXG, the chiller will be exhibited for the first time at the All-Industry Refrigeration and Air Conditioning Show in Cleveland, Oct. 29 to Nov. 1, Acme has announced.

These new refrigerant heads are said to offer a variety in the number of passes available to assure the proper flow of refrigerant and oil through the tube to meet various capacity requirements for a given diameter shell.

For shells of 12 in. diameter or larger, the company has designed heads for either one or two even refrigerant circuits.

Water is circulated around the tubes and the actual flow of water through the shell is controlled by the baffle arrangement in the shell, the company explains.

Refrigerant control is obtained by the use of a thermostatic expansion valve, which is claimed to eliminate the need for refrigerant pumps, float valves, surge drums, large liquid receivers, and oil separators.

Tube holes in the tube sheets, Acme says, are drilled and reamed to a fine finish and multiple concentric grooves are cut inside the holes. Tubes are reported to be roller expanded in equal amount into the tube sheets at each end of the chiller by a special operation which prevents over rolling.

Sectional Cooling Towers Introduced by Marlo

ST. LOUIS—A new line of cooling towers ranging from 3 to 50 tons capacity has been introduced by the Marlo Coil Co. here.

Designed to serve unit air conditioners and refrigeration plants with water cooled condensers, the new cooling towers are said to be identical to Marlo's evaporative condenser in dimension, design, and construction, except that in place of the condensing coil, suitable wetted deck surface is used.

The towers are claimed to combine the merits of the three conventional designs—deck, spray, and fan type blowers.

Sectionally built, they come in 10 sizes. Optional features include indoor and outdoor types, unidrive or remote pump, and stainless steel construction.

A mechanical draft feature, says the company, renders their performance independent of prevailing wind direction or velocity, thus avoiding all drift and spray carryover.

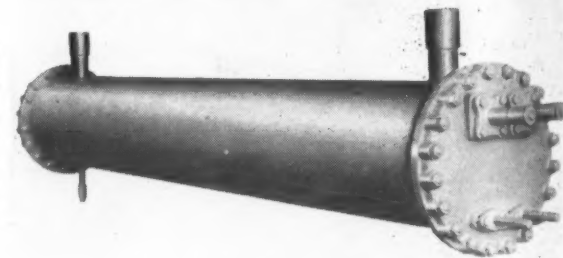
The towers are said to handle 3 g.p.m. of water and 300 c.f.m. of air per ton.

This construction, it is claimed, is designed to reduce the possibility of leakage and at the same time insure structural strength of the tube joint to resist forces which are caused by expansion and contraction of the tubing.

Acme also claims a positive oil return with the refrigerant vapor and freedom from the possibility of freeze up.

Acme's New Direct Expansion Water Chiller

Variety of number of passes to insure proper flow of refrigerant are said to be available in heads for water chillers announced by Acme.



Attention!!

MANUFACTURERS
DISTRIBUTORS
DEALERS
FROZEN FOOD PACKERS

UNBREAKABLE PLASTIC DISPLAY FOODS

FOR REFRIGERATORS AND APPLIANCES

Apples
Bananas
Pears
Oranges
Lemons
Tangerines
Grapefruit
Turkeys

FOR REFRIGERATORS

Deluxe Sets

42 PIECES \$24

Standard Sets

32 PIECES \$18

Tomatoes
Peppers
Lettuce
Cabbage
Cauliflower
Strawberries
Meats
Chickens

WHAT ARE YOUR NEEDS?
We Manufacture Special Campaigns

ARTIFICIAL FOODS CO. of BOSTON
59 NO. WASHINGTON STREET BOSTON 14, MASS.

Lehigh
BLU-COLD
COMMERCIAL REFRIGERATION

"—they look good at the show— AND THEY'LL LOOK EVEN BETTER WHEN YOU PUT THEM TO WORK!"

The LEHIGH TEAM Says

Engineering

Management

Production

User

Lehigh
BLU-COLD
3/4 H.P.
1 H.P.

Lehigh
BLU-COLD
1/2 H.P.

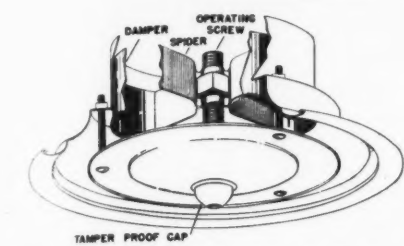
Lehigh
BLU-COLD
1/3 H.P.

Lehigh
BLU-COLD
1/4 H.P.

Complete Line to Include
1/4 to 5 H.P.

Lehigh
BLU-COLD

Lehigh Mfg. Co., Inc. PLANT: LANCASTER, PA.

What's New—(Cont.)**KNO-DRAFT High Velocity Air Diffuser****Connor Alters Damper In KNO-DRAFT Air Diffuser**

NEW YORK CITY—A new simplified, lightweight adaptation of the damper in the KNO-DRAFT High Velocity Air Diffuser has been developed here by the W. B. Connor Engineering Corp.

With fewer parts and aluminum construction, the firm has endeavored to reduce the weight and increase the efficiency of the diffuser without sacrificing durability. To regulate air volume, the cylindrical damper, an integral part of the diffuser, is raised or lowered by turning the extended shank of the operating screw which is centered in the lower cone and concealed by a tamper-proof cap, the company stated.

The lower cone, however, operates independently of the damper and may also be raised or lowered at will in order to adjust air flow direction.

A handbook outlining selection and installation of air diffusers may be obtained by writing W. B. Connor Engineering Corp., 114 East 32nd St., New York City.

Quick High-Low Reading Given by Thermometer

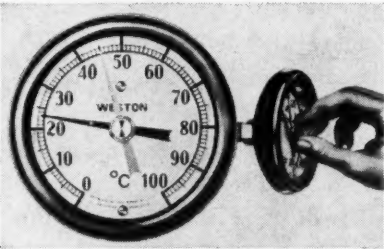
NEWARK, N. J.—A new all-metal thermometer known as the Max-Min, which indicates the maximum or minimum temperatures reached, has been introduced by the Weston Electrical Instrument Corp., Newark.

Similar in other respects to the standard Weston all-metal thermometer, the new Max-Min has an

auxiliary red index which is manually set by a finger knob which protrudes from the center of the scale glass (as illustrated).

When a record of the lowest temperature reached is desired, this index is placed to the low side of the temperature pointer. The pointer will move the index to the lowest temperature reached during any operating period, and the index will remain at that low point until manually re-set.

For a record of the highest temperature reached, the index is simply set at the high side of the pointer.

**Weston Max-Min Thermometer****Evaporator, Sign Combined In New Rich-Aire Case**

CORSICANA, Tex.—An evaporator built into the shape of a sign, thus providing refrigeration and advertising at one and the same time, features the new refrigerated display case designed especially for candy, announced by Rich-Aire, Inc. here.

This "frosted sign," the company says, is engineered to display any trade name or trademark and is made up to customer's specifications. Special electronic lights hit the frosted sign from all sides, giving "the effect of moonlight on snow," according to the company.

The new display case is scheduled to go into production in 90 days, the company announced.

First models are said to be capable of maintaining temperatures of 40° F. to 70° F. However, Rich-Aire plans to make cases which will go down to -10° F. for the ice cream and frozen food trade.

Another feature of the case is one-

One-Piece Plexiglass Front for Display Case

At right is the Rich-Aire refrigerated candy display case which with its one-piece moulded plexiglass front permits unobstructed view. Feature of the case is its special evaporator built into the shape of a sign, in this instance, "King's."



piece moulded plexiglass upper front section, which the company declares, "allows full unobstructed and undistorted views from all angles even from the rear of the case," thus providing more flexibility in locating the unit in a store.

Underneath the display area, is a five-drawer storage area, also refrigerated. The condensing unit is located at one end of this lower section, according to Rich-Aire.

The case is of highly polished stainless steel construction.

It's a
REVELATION
—that's all!



- ★ Exclusive Dealer Franchise
- ★ Now in quantity production
- ★ All sizes: Industrial and Commercial
- ★ The last word in...

**ELECTRIC
WATER
COOLERS**

Revelation Company
Division of
Interstate Engineering Corporation
2600 Imperial Highway
El Segundo, California

**REFRIGERATION
AIR CONDITIONING
VALVES
FITTINGS**

BY
KEROTEST

**SOLD BY LEADING WHOLESALERS
EVERYWHERE!**

AT
THE SHOW!
SEE OUR
EXHIBIT
BOOTHS 224-226

COMING EVENTS**CAST PROFIT SHADOWS**

The "pent-up" demand for new installations and the need for servicing of old equipment—to keep it in operation—means many profitable years ahead. For assured profits, greater trouble-free service and dependability, be sure the Valves you install have the KEROTEST trade mark.

KEROTEST MANUFACTURING CO.

PITTSBURGH 22, PA.

NEW YORK • CHICAGO • HOUSTON • LOS ANGELES

Editor's Note: The Sept. 30 issue of the NEWS carried a tabulation of home freezer prices, the data being given for some 170 manufacturers. It was as complete as the editors could make it at that time.

Since that time additional information has been received for (1) companies not represented in the Sept. 30 issue; (2) added models for some of the companies in that issue.

The NEWS has checked these prices with the companies represented, but where no reply was received, the prices are being published anyway, since they came from official sources.

These prices are, in all cases, the official prices approved by the Office of Price Administration, at the time that they were compiled by AIR CONDITIONING & REFRIGERATION NEWS.

Additional Listings of Home Freezer Prices

Ben-Bar Sales, Inc., 1025 N. Third Ave., Milwaukee

	Dealer	Consumer
F-14-14 cu. ft., 1/4 hp. condensing unit.....	\$294.00	\$490.00
F-14-5-14 cu. ft., 1/4 hp. condensing unit.....	318.00	530.00
Chapman Mfg. Co., Corvallis, Ore.		
15 1/2 cu. ft. home freezer		\$535.00

City Refrigerator Co., 1311 W. Atkinson, Milwaukee

	Distributor	Dealer	Consumer
16 cu. ft., 1/4 hp. condensing unit	\$250.00	\$300.00	\$500.00
12 cu. ft., 1/4 hp. condensing unit	210.00	252.00	420.00
8 cu. ft., 1/4 hp. condensing unit	160.00	192.00	320.00

Firestone Tire & Rubber Co., Akron, Ohio

	Dealer	Consumer
Model 5-A-4-6 cu. ft. upright	\$245.00	\$329.95
Model 5-A-5-farm model freezer-18 1/2 cu. ft.....	430.00	529.95
Model 5-A-15-6 cu. ft. chest type	253.00	315.00

Gamble & Hawley, Inc., 835 Osage Ave., Kansas City, Kan.

	Jobber	Dealer	Consumer
15 cu. ft. box	\$230.00	\$276.00	\$460.00
20 cu. ft. box	279.00	334.00	519.00
21 cu. ft. box	294.00	373.00	534.00

Nelson Co., L. E., 125 Glenwood Ave., Minneapolis

	Dealer	Consumer
Lenco Upright Farm Home Freezers		
Model R-14-14 cu. ft., 1/4 hp. condensing unit....	\$273.00	\$455.00
Model R-2-20 cu. ft., 1/4 hp. condensing unit....	324.00	\$540.00
Lenco Chest Farm Home Freezers		
Model W-14-14 cu. ft., 1/4 hp. condensing unit....	273.00	455.00
Model W-20-20 cu. ft., 1/4 hp. condensing unit....	324.00	540.00
Model W-35-35 cu. ft., 1/2 hp. condensing unit....	446.00	744.00

Refrigeration Engineering Co., 211 Foshay Tower, Minneapolis

	Distributor	Dealer	Consumer
Model 20-20 cu. ft., 1/4 hp. condensing unit.....	\$300.00	\$360.00	\$539.00
Model 40-1/2 hp. condensing unit	425.00	480.00	598.00

Refrigeration Service Co., 1515 Blake St., Denver

	Distributor	Dealer	Consumer
10A-15 cu. ft., 1/4 hp. condensing unit.....	\$247.50	\$298.00	\$495.00
4-4 cu. ft., 1/4 hp. condensing unit.....	132.50	159.00	265.00
10-10 cu. ft., 1/4 hp. condensing unit.....	225.50	270.00	450.00

Stoner Mfg. Co., 328 Gale St., Aurora, Ill.

	Distributor	Dealer	Consumer
12.75 cu. ft., 1/4 hp. condensing unit.....	\$215.00	\$258.00	\$430.00
12.75 cu. ft., 1/4 hp. condensing unit with stainless steel liner	235.00	282.00	470.00

Sub-Zero Freezer Co., Inc., Route 3, P. O. Box 2017, Madison, Wis.

	Consumer
Model 16-V (Up-right)	
Complete with white baked enamel finish.....	\$550.00
Cabinet only, less condensing unit.....	\$550.00
Complete with aluminum finish	625.00
Cabinet only, less condensing unit	455.00
Model 500	
Complete	430.00
Cabinet only, less condensing unit	330.00
Model 900	
Complete	600.00
Cabinet only, less condensing unit	434.00
Model 800	
Complete	566.00
Cabinet only, less condensing unit	400.00
Dealer discount-40%.	

Sullivan & Co., F. H., Route 6, Box 27, Vancouver, Wash.

	Dealer	Consumer
20 cu. ft., 1/4 hp. condensing unit.....	\$300.00	\$495.00

True Mfg. Co., 6312 Lenox Ave., St. Louis

	Distributor	Dealer	Consumer
13 1/2 cu. ft., 1/4 hp. condensing unit.....	\$255.00	\$306.00	\$510.00

Universal Refrigeration Co., 1854 South Western Ave., Los Angeles

	Dealer	Consumer
Model CP-20-1/4 hp. unit	\$465.00	\$775.00
Model U-20 D.T.-1/4 hp. unit	465.00	775.00
Model U-40-1/2 hp. unit	700.00	1,175.00

Victor Products Corp., Hagerstown, Md.

	Distributor	Dealer	Consumer
10 1/2 cu. ft., 1/4 hp. condensing unit	\$215.00	\$258.00	\$430.00
10 1/2 cu. ft., less unit	170.00	204.00	340.00
18 1/2 cu. ft., 1/4 hp. condensing unit	285.00	342.00	570.00
18 1/2 cu. ft., less unit	227.50	273.00	455.00
26 1/2 cu. ft., 1/4 hp. condensing unit	350.00	420.00	700.00
26 1/2 cu. ft., less unit	260.00	318.00	520.00

Wilson Cabinet Co., 114 Main St., Smyrna, Del.

	Distributor	Dealer	Consumer
Model S-15-farm freezer	\$208.00	\$260.00	\$416.00

York Corp., York, Pa.

	Dealer	Consumer
Model 165-16 1/2 cu. ft., 1/4 hp. compressor.....	\$300.00	\$500.00
Model 350-32 1/2 cu. ft., 1/2 hp. compressor.....	570.00	950.00

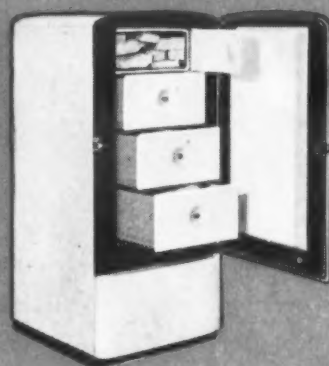
Zerobox Co., 11 Market Place, Hudson, N. Y.

	Distributor	Dealer	Consumer
20 cu. ft., 1/4 hp. condensing unit	\$330.00	\$396.00	\$660.00
30 cu. ft., 1/4 hp. condensing unit	440.00	528.00	880.00
4 1/2 cu. ft., 1/4 hp. condensing unit	140.00	168.00	280.00

Freez-all BEAUTY... A joy forever

John Keats, English poet, said, "A thing of beauty is a joy forever."

With the simplicity of true elegance, Freez-All's beautiful, modern, style design proclaims in lovely lines the superior qualities of this... the original drawer type freezer. The permanent, lustrous, white, easy-to-clean finish exerts a forceful appeal on the wise housewife. Her feature-wise eye will note the shining, modern beauty and practicality of Freez-All's rugged, brass, chromium-plated hardware. Durable, practical, and lovely, Freez-All, the perfect home food freezer, will be a thing of beauty and a source of satisfaction in every home.



MODEL 80

The Model 80 provides a full 8 cu. ft. of easily accessible food storage space, insulated with 5" of Fiberglas on the sides and 6" of Styrofoam (plastic) insulation on the bottom. A spacious sub-zero, sharp freeze compartment processes large quantities of food at a time. Three food storage drawers bring new con-

venience to home food freezing. Now the housewife can see and remove the package she desires without disturbing and repacking all the rest.

Where a small home food freezer is desired, the Freez-All 6 cu. ft. chest type Model 60 is ideal. It will hold up to 300 lbs. of food, and it has the superior Freez-All quality construction.

Products of
REFRIGERATION DIVISION
DEPT. F-110
PORTABLE ELEVATOR MFG. CO.
Bloomington, Illinois

Freez-all

Welcome

CONVENTION • CLEVELAND

PERFECT
BALANCE

Will see
you
at Booth
502

Chicago Seals

MODERN DESIGN

CHICAGO SEAL CO.

20 North Wacker Drive Chicago 6, Illinois

Fiske Questions Value Of 'White Collar' Courses In Refrigeration Field

NEW YORK CITY — Two year courses to turn out refrigeration draftsmen, estimators, engineers' assistants, and laboratory assistants are now being offered veterans under the G. I. education bill by eight or 10 institutions throughout the country, David L. Fiske, secretary of the American Society of Refrigerating Engineers, declared in a story appearing in the Oct. 13 issue of *The New York Times*.

Calling this an "interesting experiment," Mr. Fiske, however, questions whether these courses will produce personnel able to compete with holders of bachelor of science degrees in agricultural, mechanical, and chemical engineering who are willing to begin in the industry in apprentice slots.

"A holder of one of these degrees, or even a candidate for a B. S. or B. A. degree with only two years of his prescribed course completed will have a far better chance at apprentice employment if he has a sound grasp of mathematics and physics," he said.

Refrigeration engineers themselves do not favor specialization or trade school courses until men have either a technical degree or some general technical education combined with practical experience, according to Mr. Fiske.

No university in the nation offers a course in refrigeration, he asserted. However, he added, many grant a master's degree to holders of a B. S. in agricultural, mechanical, and chemical engineering.

Nash Buys, Incorporates Joliet Chemicals, Ltd.

JOLIET, Ill. — Joliet Chemicals, Ltd., manufacturer of silica gels, synthetic zeolites, and related products, has been purchased by Kenneth F. Nash, formerly a managing partner of the firm, and combined with affiliated chemical manufacturing facilities to form a new corporation, Joliet Chemicals, Inc., it has been announced here.

Mr. Nash will act as president of the new corporation and L. T. Hartlove, formerly a member of the engineering staff of the Davison Chemical Co., will serve as vice president in charge of production.

Mr. Nash is said to have bought the interests of the partners of Joliet Chemicals, Ltd., for approximately \$150,000 in cash.

Consolidation in the near future of Mr. Nash's various interests, including Joliet Chemicals, Inc., Chemicals, Inc., of Chicago, and a corporation controlling a chemical plant in Niagara Falls, N. Y., is reported to be under consideration. Offering stock to the public is also contemplated once the consolidation takes place.

Products of Joliet Chemicals, Inc., will be sold under the trade name "Jay Cee," according to the company.

Fullerton Handles York Line In Merrimac Valley Area

ANDOVER, Mass. — Wallace A. Fullerton, who has been connected with York Corp. for 15 years, has established a distributorship here to handle the York line of products.

Mr. Fullerton's firm, Bay State York, Inc., reportedly will operate in the Merrimac Valley area covering the cities of Lowell, Lawrence, and Haverhill, Mass.

Mr. Fullerton is president of the firm. While with York, he held various positions in Boston, Providence, Philadelphia, Baltimore, and Sydney, Australia, as factory engineer, contract manager, and branch manager.

Sturtevant Names Olsson Branch Manager in D. C.

WASHINGTON, D. C. — Appointment of Eric V. Olsson as local branch manager has been announced by the B. F. Sturtevant Co., a division of Westinghouse Electric Corp.

In addition to the District of Columbia, Mr. Olsson will also direct the sales and engineering application of Sturtevant products in the Richmond, Va., and Charleston, W. Va., territories, the company reported.

238,000 Unit Annual Market Predicted For Floor, Window Air Conditioners

CLEVELAND — According to a market analysis made for Pacific Mfg. Corp. here, annual sales of self-contained window and floor units made by the industry will zoom from the prewar peak of 44,000 in 1941 to an estimated 238,000 annually as soon as materials permit production in that quantity.

The market survey, made by a national business reporting agency, indicated annual sales at present price levels for conditioners would level off around the quarter-million mark. Pacific Mfg. points out, however, that the broader postwar market enables manufacturers to more closely approach the economies of mass production to bring down selling costs.

Weighing climatic conditions, purchasing power and population and past buying records, the survey points to the 11-state area around the Mason-Dixon line as the best market for conditioners. District of Columbia

also is included in the area, which is figured to have 56% of the market potential.

Next best market is said to be the area which includes Texas, Louisiana, and Kansas. Five southeastern states of the country have the summer climate which makes conditioners desirable, but unless a marked improvement in their economic status is made, the market is reported a poor one with but 4.7% of the country's potential sales. Florida, rated as a good market area, is not included in the group.

New York and Wisconsin are typical states with buying power which are relatively less attractive markets because of their cooler summers. California, bordered by thinly populated states on the east and by cooler climates to the north, is a distinct market having 13% of the potential sales for floor and window-type room conditioners, the survey shows.

Appliance Makers Seek English Motors

NEW YORK CITY — Appliance makers here are requesting quotations on small motors produced in England, the *Wall St. Journal* reports.

This action is being taken, the paper says, because OPA ceiling prices are holding up domestic output of motors. General Electric estimates that it loses \$1.00 on every refrigerator motor it sells and \$1.35 on every washing machine motor, according to the *Journal*.

If English motors are brought in, they will cost well above the ceiling price on domestic products.

Henry Trotter Factory Sold To O'B. Kennedy of Dallas

FT. WORTH, Tex. — The 10,000 sq. ft. factory of Henry Trotter & Co., manufacturer and distributor of commercial refrigeration here, has been purchased by the O'B. Kennedy Refrigeration Co. of Dallas.

Minneapolis-Honeywell Opens Larger Modern Headquarters In L.A.

LOS ANGELES — Southern California's rapid industrial and building development has been reflected in opening of a new and greatly enlarged headquarters building by the Minneapolis-Honeywell Regulator Co.

The new building, a modernistic structure at 2840 East Olympic Blvd., will represent a completely integrated branch of the company, housing all divisions: heating and air conditioning controls, industrial, aeronautical, contractor, original equipment, and jobber-dealer.

The enlarged central office was made necessary by an expansion of the Honeywell staff here from seven persons to 24 in the last 18 months.

It will provide complete facilities for installation of both pneumatic and electric heating and air conditioning control systems for commercial buildings, and to assist in engineering and layouts.

New "DETROIT" No. 573 THERMOSTATIC EXPANSION VALVE

All The Reliability of No. 673 For Smaller Installations

The latest addition to the "Detroit" line of Expansion Valves is No. 573.

Tests show it has the sturdy performance of the No. 673. It is designed for small commercial installations and on such develops operating characteristics superior to single diaphragm valves at no penalty in cost. It has a two diaphragm gas charged power element offering gas charging in its simplest, most effective form—a single efficient power element.

Try these valves on your next suitable job. They provide the same trouble-free control as the No. 673.



CAPACITIES OF NO. 573 VALVE

Rated at 1/2 ton Freon-12, or .9 ton Methyl

UNIT NUMBERS OF NO. 573 VALVE (Stock Items with Your "Detroit" Jobber)

Unit No.	Refrigerant	Max. Pressure	Connection
57300	Freon-12	45	Inlet 3/8" SAE for 3/8" x 1/4" reducing nut
57309	Freon-12	10	
57311	Methyl	35	
57315	Methyl	5	Outlet 1/2" SAE for 1/2" x 3/8" reducing nut

Use "Detroit" Unit Numbers When Ordering.

SEE THIS VALVE AND OTHER DETROIT LUBRICATOR REFRIGERATION PRODUCTS AT The All Industry Refrigeration and Air Conditioning Exposition—Cleveland Public Auditorium, Oct. 29 to Nov. 1, 1946. North Exhibit Hall Booths 503 and 603

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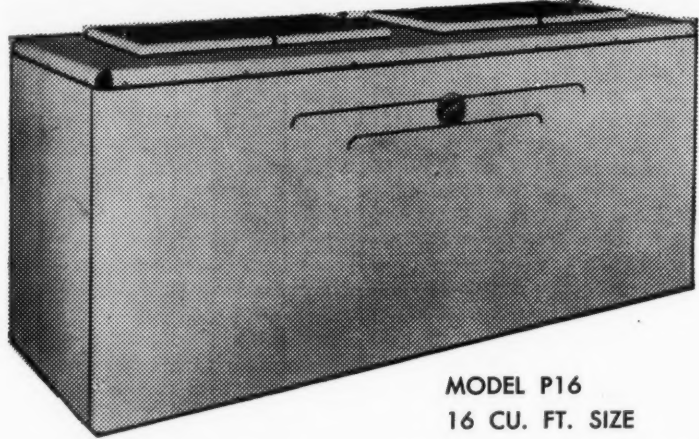
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WHITE HORSE FREEZING CABINETS, especially designed for efficiency and economical operation, meet every requirement for homes, restaurants, roadside stands—wherever cold, dry storage is desired.



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HEIGHT—32 IN.

MODEL P16
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electric welded steel tank.

Insulation—4-Inch Fibre Glass and 1 inch
Celotex, properly sealed.
Lids—Two folding lids with nickel-plated (on
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Full-Production of these Finest Quality Freezers Assures Prompt Delivery

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HERE'S AMCOILS TWO-FOLD ANSWER TO FOOD CONDITIONING AND FREEZING

**AMCOIL DELUXE
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Cools without Dehydration



Pat. Pend.

**AMCOIL ZERO BREEZE
LOW TEMP UNIT**
Defrosts without Defreezing



Pat. Pend.

Only an Amcoil Deluxe Food Conditioner can do this double job—cooling and preventing dehydration at the same time. EXTRA FEATURES for complete automatic control, it maintains high humidities (up to 85%), while cooling down to 36°F. This double-duty performance not only preserves but insures a minimum waste from trimming and a maximum retention of natural bloom and freshness of meats, or on any products where dehydration is a factor. It sells itself because it pays for itself.

Also available now is the Utility Food Conditioner, designed to meet the need for a moderately priced unit for cooling and preventing dehydration.

Investigate these profit makers today. Send for bulletin FC (Deluxe) and UDF (Utility) NOW!

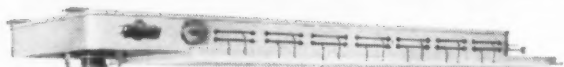
The Amcoil Zero Breeze Low Temperature unit has a built-in device to assure automatic defrosting of the cooling coil during each refrigeration off cycle. It's something new for better preservation and storage of frozen food products at temperatures between +20°F and -20°F. It has three controls: (1) manual defrost, (2) semi-automatic defrost, or (3) fully automatic defrost.

For best results from this completely modern automatic, Zero Breeze low-temp unit, be sure you have an experienced low temperature installation man. The AMCOIL Engineering Department will make recommendations for your type of application on request.

Especially designed for efficient cooling and preventing dehydration at temperatures down to 36°F. in all kinds of display cases. This unit can be easily installed without remodeling case.

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STOCK THIS
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COMING SOON AMCOIL DISPLAY CASE FOOD CONDITIONER



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SEE YOU IN CLEVELAND—BOOTH 911

INSIDE DOPE

by GEORGE F. TAUBENECK

(Concluded from Page 1, Column 1)
perusing their respective portions of the evening paper.

The rapt silence was broken by Mrs. Wilson.

"Honey, you have the first page. Would you please read me the weather forecast for tomorrow? I want to go shopping."

Growled her husband:

"Forecast for tomorrow reads: thunder showers, severe cold wave, snow, sleet and hail, with temperature falling to 25° below zero."

A Fate Worse Than Death

On the porch of a small, dilapidated house overlooking the village cemetery sat an elderly man and his wife.

Gazing pensively at the tombstones silhouetted against the rising, yellow moon, the old gentleman reflected:

"Mary, when I look at the graveyard, it always saddens me to think of our own dear Annie lying out there."

"Me too, Paw," replied his wife, rocking to and fro in her wicker rocker-chair. "Sometimes I almost wish she was dead."

A Refrigerated Answer

An entranced young swain whispered ardently into her shell-like ear: "My greatest desire is to see you melt in my arms."

"That will never happen."

"Why?"

"Well, in the first place," she informed the crestfallen suitor, "I'm not that soft, and in the second place, you aren't that hot!"

Man or Mouse?

Sauntering leisurely into a saloon, a young man seated himself on one of those difficult-to-manuever bar stools.

"Give me a glass of your best whiskey," he ordered. "I can pay for it."

When the ounce of bonded toddy was placed before him, he lifted it from the bar, and hurriedly poured its choice contents into his vest pocket. That startled the bartender. But the man played the game again.

After that odd procedure was repeated for the third time, the bartender could restrain himself no longer. Grabbing the peculiar patron by the lapel of his Brooks Bros. suit, he roared:

"Look, Bub, this has gone far enough! What's the idea of wasting the best liquor in the house on your vest?"

"Shut up," growled the irate customer, "if you don't mind your own business, I'll give you a beating you won't forget."

And out of the curious customer's vest pocket popped the wooly head of a little brown mouse. It squeaked: "Yeh, and that goes for your damned cat, too!"

Direct Results

A certain young bachelor, who was considered in certain decadent social circles as being "the best catch of the season," entered a dark and cozy bistro, accompanied by a voluptuous redhead.

After the white-clad waiter had guided them to a remote corner booth, he stood stiffly—awaiting the orders of this elite couple.

"Gimme a shot of vodka, with a chaser of Southern Comfort," instructed the wealthy young man—about-town. "What will you have, Baby?"

"A husband, if you continue drinking those super-boilmakers all night," replied his attractive companion.

Guaranteed Reader Interest

Students in a literature class were being lectured by an author, who talked on the ingredients necessary in the evolution of an interesting short story.

"One sure-fire formula for producing a successful short story," he began, "is to start out by involving God, royalty, or sex in your plot."

Next morning, while perusing his pupils' attempts at writing out their own hesitant legends, the professor was somewhat amazed to find that one member of his class had begun his story with the following first sentence:

"My God," ejaculated the Princess, "take your hand off my knee."

Lesser of Two Evils

A resident of a West Indies island was preparing his household against the onslaught of an expected typhoon, which visited that territory at more or less regular intervals. In order to safeguard his two small sons against the dreaded occurrence, he sent the sprightly pair to the home of a relative in London.

After a brief period of time had elapsed, the island gentleman received an urgent telegram:

"Am returning boys, please send typhoon instead."

Give Me Land, Lots of Land

A grammar school teacher had ordered members of her eighth grade class to write essays on the implications of imperialism, as such implications might involve the founding and spread of the British Empire.

One small student, apparently from an anti-Tory family, offered his own conception of how that immensely complicated growth came about:

"When England wishes to get a colony, she first sends out a missionary. When the missionary locates a beautiful and fertile piece of land, he gathers all the local natives about him and proceeds to pray.

"Subsequently, when everyone's eyes are shut, the British flag is then hoisted."

You Never Can Tell What Will Engage the Public

Two frustrated gentlemen were discussing various ambitions which secretly burn in the bosoms of people.

"Take me, for example, I have always attempted to write stories. Why, a dozen or so years passed by before I found out that I really couldn't write fiction," this man confessed.

"Then, of course, you gave up the idea?" interrogated his companion.

"Oh, no," he rejoined. "By that time it wasn't necessary. I had acquired a reputation."

Mellowed with Age

In a letter addressed to a caustic literary critic, a writer of popular novels confided that, although he now made more money than ever before, he believed that his current efforts were not up to his earlier par.

Angling for a compliment, the novelist asked the critic if the latter hadn't noticed this subtle change in his works and workings.

"There is no difference," soothed the critic, "It's just that your taste is improving."

By Any Other Name—

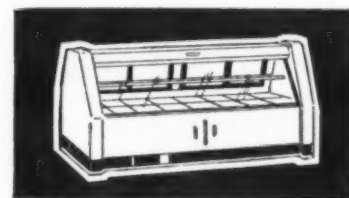
A doctor and a lawyer were discussing some of their most unique cases whilst partaking of the alien corn.

"I'm consumed with curiosity about one unusual and interesting case at the present time," related the doctor. "It's like this: A client of mine is so cross-eyed that every time she weeps the tears run down her back."

"That is odd," agreed his friend. "For what malady are you treating her?"

"Bacteria, of course," rejoined the prescient medico.

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SUCCESSFUL DISTRIBUTORS
SELL OUR COMPLETE TOP-
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INTERESTING PROPOSITION
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A FEW TERRITORIES STILL
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Varied Program Set for R.S.E.S. Annual Meeting

Editor's Note: Shown below is the schedule of meetings and other events planned during the week of the All-Industry Show in Cleveland by the Refrigeration Service Engineers Society. First meeting, however, was held Saturday afternoon, followed by a get-together party, and Sunday's events included educational sessions in the morning and afternoon and a luncheon.

(All Meetings at the Hollenden hotel)

Monday, Oct. 28

9:30 a.m. to 12 noon—Educational session.

1:30 to 5:00 p.m.—Visits to laboratory of National Advisory Committee for Aeronautics, Weatherhead Co., and General Electric Co.'s Nela Park lighting laboratories.

8:30 p.m.—Annual banquet.

Tuesday, Oct. 29

9:30 a.m. to 3:00 p.m.—Educational session.

Educational sessions will feature the following discussions:

"The Refrigeration Service Engineer's Place in the Industry," by H. F. Hildreth, manager, Refrigeration Specialties Dept., Westinghouse Electric Corp., Springfield, Mass.

"Things We Need to Know About Foods," by Dr. H. C. Diehl, director, Refrigeration Research Foundation, Inc., Berkeley, Calif.

"The R.S.E.S. Looks Ahead," by P. B. Reed, Perfex Corp., Milwaukee.

"The Two-Temperature Refrigerator," by R. W. Ayres, chief engineer, the Coolerator Co., Duluth, Minn.

"The Modern Repair Service Shop," by V. R. Kruse, Woodstock, Ill.

"Developments in Shaft Sealing," by Willis Stafford, engineer, Chicago Seal Co., Chicago.

"Recent Developments in Thermal Expansion Valves." Speaker to be announced.

"Hermetic Units and the Service Engineer," by L. W. Larsen, assistant sales manager, Refrigeration Division, Tecumseh Products Co., Tecumseh, Mich.

"Preventive Maintenance of Air Conditioning Equipment," by M. Goddard, Carrier Corp., Syracuse, N. Y.

"Financing Your Business," by W. C. Irving, Santa Monica, Calif.

"Responsibilities of Servicing Equipment in the Low Temperature Field," by E. T. Benson, engineer, Frigidaire Division, Dayton, Ohio.

"Servicing Ammonia Compressors," by Wm. G. MacBride, York Corp., York, Pa.

35-Ton Air Conditioning System Cools Drugstore

ST. LOUIS—A 35-ton Carrier air conditioning system has been installed in the new Walgreen drugstore at 8th and Washington Aves. here.

Novel features of the system are said to include the use of arch-type wall outlets over the fountain, spaced 6 ft. apart, which first cool the heat-load area over the steam table and grills before the rest of the store.

Pulleys, Flywheels

V-Groove Pulleys, 1 and 2 grooves, from 2" to 7"

Flywheels up to 18", spoke and fan type

These pulleys made from best quality grey iron

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A NEW HENRY SOLENOID VALVE Worthy of Its Name

for

"Freon" Methyl Chloride,
Water, Air, Oil, Gas, etc.



Simplicity of design and ruggedness in construction, characteristic of all Henry Products, are also found in this new, medium-priced Type SV-11 Solenoid Valve making it ideal for small capacity installations. Incorporated in a standard outlet box, it can be quickly mounted through screw holes provided and electrical connections can be easily made by utilizing one of three knock-outs in outlet box. Coil can be removed and replaced without disturbing electrical connections to thermostat or other electrical devices. Efficient magnetic circuit provides low current consumption and "floating plunger" insures quiet operation. Type SV-11 meets all requirements of the Underwriters Laboratory.

Furnished with 3/8" FPT connections in following standard voltages: 115 volt, 60 cycle and 230 volt, 60 cycle.

OPTIONAL FEATURES FOR VOLUME REQUIREMENTS
Type SV-11 Solenoid Valve can be mounted in approved metal enclosure, less outlet box. Lock-nuts threaded on body for mounting. Also available with larger outlet boxes where multiple electrical terminals are required.

• Henry Solenoid Valves include hard and soft seat types, with A C ratings 1 to 20 tons of "Freon." Also 10 tons and larger for Ammonia.

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**AIR CONDITIONING
EXPOSITION**

**ON
DISPLAY...**

**DRY
BEVERAGE
COOLER**

8 Foot
Blower-Type

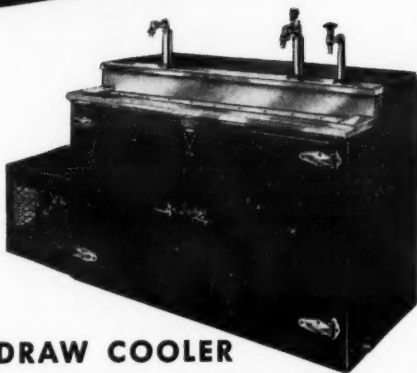


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CABINET**

20 cu. ft. Capacity



FROST DRAW COOLER



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ANNOUNCING THE NEW

**IMPERIAL
DIASEAL
VALVE**



NO SPRINGS

"EITHER-WAY" FLOW

Imperial leads again with a major advance in refrigeration valve design. The DiaSeal is a diaphragm valve built along entirely new principles—offers outstanding superiorities in performance. Proved and tested both in the laboratory and in the field. Note its advantages:

- 1. NO SPRINGS**—Direct lift provides positive control with flow in either direction.
- 2. ONLY TWO MOVING PARTS**—Simple construction assures greater dependability.
- 3. EASY FINGER-TIP ACTION**—Quick, sure opening and closing with less than two turns of handle.
- 4. LONG LIFE DIAPHRAGM** is impervious to all common refrigerants. In actual tests, has withstood over 1,000,000 openings and closings under refrigerant pressure.
- 5. INLET AND OUTLET PORTS IN LINE.** Simplifies installation.

Both internal parts of the DiaSeal lift out with the bonnet, facilitating soldering in line. Extremely low height cuts installation space.

Furnished in a 2-way and angle types, with either flare or solder connections. The Imperial Triple-Seal Groove is an added feature on flare connections $\frac{3}{8}$ " and larger.

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FLOATS • DEHYDRATORS • CHARGING
LINES • TOOLS FOR CUTTING, FLAR-
ING, BENDING, PINCH-OFF AND SWEDGING

Master Program Lists Industry Show Events

Monday, Oct. 28

8 a.m. to 5 p.m.—National Frozen Food Locker Association registration. Public Auditorium.

9 a.m. to 12 noon—Refrigeration Equipment Wholesalers Association registration. Mezzanine, Statler hotel.

9:30 a.m. to 12:30 p.m.—National Association of Refrigeration Contractors general meeting. Allerton hotel.

9:30 a.m. to 12 noon—Refrigeration Service Engineers Society educational session. Hollenden hotel.

10 a.m.—Frozen Food Locker Manufacturers & Suppliers Association registration. Public Auditorium.

1 p.m.—Refrigeration Equipment Manufacturers Association and Refrigeration Equipment Wholesalers Association joint luncheon. Cleveland hotel.

1:30 to 5 p.m.—Refrigeration Service Engineers Society trips.

4 p.m.—National Frozen Food Locker Association business meeting. Club Room B, Public Auditorium.

8:30 p.m.—Refrigeration Service Engineers Society annual banquet. Hollenden hotel.

Tuesday, Oct. 29

9 to 11:30 a.m.—Refrigeration Equipment Wholesalers Association regional meetings, second floor, Statler hotel.

9:30 a.m. to 12 noon—National Frozen Food Locker Association general program. Orchestra Hall, Public Auditorium.

9:30 a.m. to 12:30 p.m.—National Association of Refrigeration Contractors membership meeting. Allerton hotel.

9:30 a.m. to 3 p.m.—Refrigeration Service Engineers Society educational session. Hollenden hotel.

9:30 a.m.—Frozen Food Locker Manufacturers & Suppliers Association standards committee. Carter hotel.

12 noon to 6 p.m.—All-Industry Show. Public Auditorium.

12:30 p.m.—National Association Refrigeration Contractors luncheon. Allerton hotel.

6 p.m.—National Association Refrigeration Contractors directors dinner meeting. Allerton hotel.

6:30 to 7:30 p.m.—Refrigeration Equipment Wholesalers Association cocktail party for members. Pine Room, Statler hotel.

7:30 p.m. Refrigeration Equipment Wholesalers Association banquet-dance. Grand ballroom, Statler hotel.

Wednesday, Oct. 30

9 to 11:45 a.m.—Refrigeration Equipment Wholesalers Association closed meeting. Euclid ballroom, Statler hotel.

9:30 a.m. to 12 noon—Frozen Food Locker Manufacturers & Suppliers Association annual meeting. Club Room B, Public Auditorium.

9:30 a.m. to 12 noon—National Frozen Food Locker Association general program. Orchestra Hall, Public Auditorium.

12 noon to 6 p.m.—All-Industry Show. Public Auditorium.

12 noon—Refrigeration Equipment Wholesalers Association luncheon. Grand ballroom, Statler hotel.

12 noon—Refrigeration Equipment Wholesalers Association optional luncheon for ladies. Lattice room, Statler hotel.

8 p.m.—"Frozen Scandals of 1946." Music Hall, Public Auditorium.

10 p.m. to 1 a.m.—Dance. Arena, Public Auditorium. Open to all convention guests. Sponsored by Frozen Food Locker Manufacturers & Suppliers Association.

Thursday, Oct. 31

9:30 a.m. to 12 noon—National Frozen Food Locker Association general program. Orchestra Hall, Public Auditorium.

9:30 a.m.—Frozen Food Locker Manufacturers & Suppliers Association directors. Carter hotel.

12 noon—Refrigeration Equipment Wholesalers Association and Refrigeration Equipment Manufacturers Association joint luncheon. Grand ballroom, Statler hotel.

12 noon to 10 p.m.—All-Industry Show. Open to public 7 to 10 p.m. Public Auditorium.

Friday, Nov. 1

9:30 a.m. to 12 noon—National Frozen Food Locker Association general program. Orchestra Hall, Public Auditorium.

10 a.m. to 4 p.m.—All Industry Show. Public Auditorium.

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PLUS 17 years experience serving the Refrigeration and Air Conditioning Industry exclusively.

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Fixture Dealers May Form National Group During Industry Show

CLEVELAND—Formation of a national association of commercial refrigeration dealers (firms selling display cases, coolers, etc.) may get under way during the All-Industry Show when commercial dealers hold an informal discussion meeting at the Carter hotel here Thursday afternoon, Oct. 31.

The National Commercial Dealers Association, as the proposed group may be known, is still in the discussion stages, and the Oct. 31 meeting will be open to all commercial dealers attending the exposition.

Four main objectives in forming such an association, according to fixture dealers, would be:

"1. Development of a code of ethics to be used as a set of rules in the game of competition between commercial refrigeration dealers at the dealer and distributor level.

"2. Development of sound business practice in procedure needed for successful operation by members of the industry at the distributor and dealer level.

"3. Research on and dissemination of information as determined on problems involved with the development of sound business practice at the distributor and dealer level for the sale to various groups of buyers.

"4. Establishment of standard practice in handling trade-ins."

L.E. Thompson Gets Post In G-E Air Conditioning

BLOOMFIELD, N. J.—Leonard E. Thompson has been appointed manager of the Renewal Parts Section of the General Electric Co.'s Air Conditioning Department and will be responsible for that section's operations at both the Bloomfield and Fort Wayne plants of the Air Conditioning Department. He will make his headquarters at Bloomfield.

Mr. Thompson joined the Financial Division of the Air Conditioning Department in 1940, working on special assignments, and filled that position until the following year when he entered the service. In November of 1945, after leaving active service with the U. S. Army with the rank of major, Mr. Thompson returned to his former post at Bloomfield. In April of this year he was named assistant to the Department Controller.

Longer Hours, Delivery System Spur Sales Of Frozen Food In 2 Atlanta Drug Stores

ATLANTA—Capitalizing on the fact that they are open longer hours than other outlets, as well as on Sundays and holidays, two drug stores here have installed frozen foods cabinets.

One of these stores, the Euclid Pharmacy at 1130 Euclid Ave., N.E., has built up an average daily volume of \$9 on frozen foods since the cabinet was installed eight weeks ago. The other stores at present handling frozen foods is a unit in the Lane Drug Store chain at Peachtree and 10th Sts.

The idea of buying frozen foods in a drug store has been very well re-

ceived by customers, declares P. L. Decoff, owner of the Euclid Pharmacy. Thus far, he has not used any kind of promotion to advertise the fact that frozen foods are available in his store, but he expects to do so soon, via circulars, and anticipates an increase in sales to at least \$12 a day.

Both longer drug store hours and delivery service are advanced as reasons why housewives find it advantageous to buy frozen foods in the drug store. The housewife, Mr. Decoff points out, is able to order her last minute vegetables after food store hours on week days, on Sun-

days, or holidays, and have it delivered in an insulated container so that the product remains at the same temperature for an entire two-hour period.

He notes also that the housewife can complete her shopping without the need of standing in line in a crowded food store.

Largest frozen food volume, Mr. Decoff declares, is done in fruits, which are placed near ice cream packages in the cabinet, in order to stimulate customers to make combination purchases.

Mr. Decoff points out that frozen foods provide an ideal side line for a drug store because of the minimum of upkeep required.

Also carrying frozen foods in Atlanta are Rich's and Davison's, the city's two largest department stores, as well as several bakeries and many of the city's food stores.

G-E Orders Drop Only 1% From Last Year's Figure

SCHENECTADY, N. Y., Oct. 10—Orders received by General Electric Co. during the first nine months of this year amounted to \$656,563,000 compared with \$660,846,000 in the same period last year, a decrease of less than 1%, President Charles E. Wilson announced last week.

In accordance with long established practice, and in addition to orders booked for apparatus and other products which normally cannot be shipped promptly upon receipt of the order, these figures include the sales value of such products as appliances, lamps, etc., actually shipped to customers during the period reported on.

**GREATER VOLUME
LESS EFFORT
WEBER Frozel
SELF-SERVICE REFRIGERATED CASE**

ON DISPLAY at the
All Industry Refrigeration and
Air Conditioning Exposition
Cleveland Auditorium
October 29th-November 1st
and
Super Market Institute—Stevens Hotel
Chicago, Ill.
November 3rd to November 7th

Frozel
THE NEW ALL PURPOSE
Self-Service
Refrigerated Case
Ideal for
Center Aisle Display
Meats-Beverages
Delicatessen
Dairy Products

FROZEL MEETS EVERY SELF-SERVICE NEED

Sales soar to a new high—selling costs are reduced to a minimum whenever FROZEL Self-Service Case is used. Convenience for the shopper—attractiveness of design—the eye-appeal setting for food, which is kept fresh and appetizing by the extra refrigeration protection—all go to make FROZEL the greatest 'silent salesman' ever introduced in the food merchandising field.

OTHER WEBER PRODUCTS

Years of refrigeration experience combined with high standards of advanced engineering technique enable WEBER to produce a line of refrigeration equipment known from Coast to Coast for quality, completeness, and appealing design.

COMMERCIAL REFRIGERATION EQUIPMENT

Reach-In Cabinets
Walk-In Coolers
Beverage Coolers

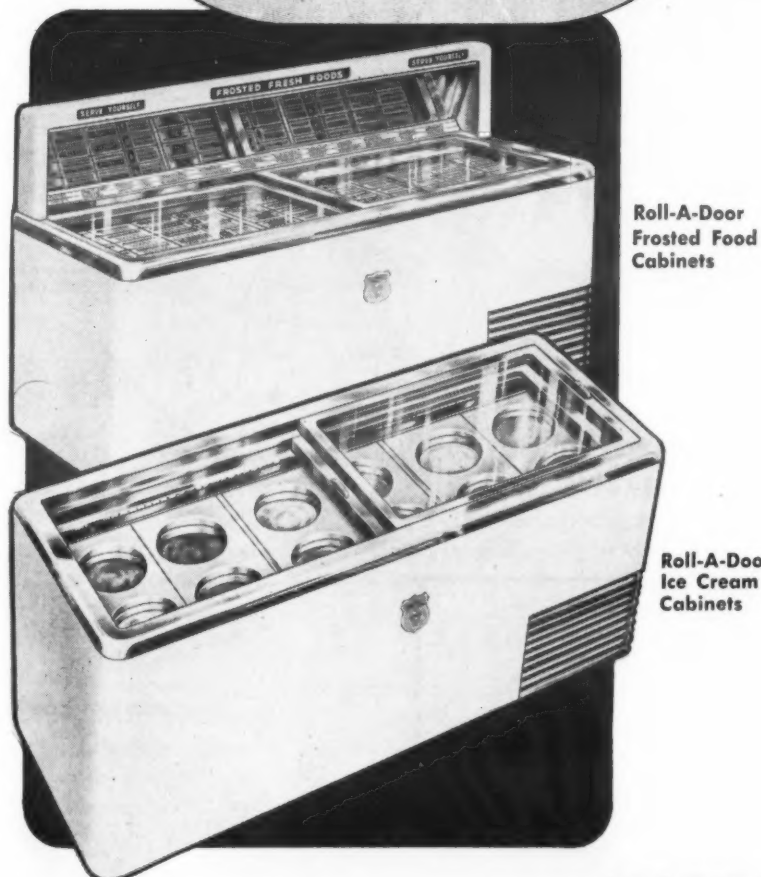
Self-Service Refrigerated Cases
Meat Display Cases
Refrigerated Candy Cases

LOW TEMPERATURE EQUIPMENT

Roll-A-Door Frosted Food Cabinets
Roll-A-Door Ice Cream Cabinets
Roll-A-Door Home Cabinets
Roll-A-Door Farm Cabinets

SODA FOUNTAINS

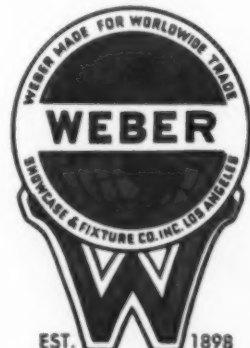
Roll-A-Door Soda Fountains
Bobtail Soda Fountains



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DOOR
GASKETS

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Booth 501

Pittsburgh Survey Hints New 'Selling Point' May Be Needed for Air Conditioning

Power Co. Questions 31,275 Users, Non-Users

By Roy Denial

PITTSBURGH—A picture of what users and non-users in this area expect of commercial air conditioning and the scope of the market in various classifications, is given in a survey of the market made by the Duquesne Light Co., power company here.

Based on interviews and correspondence with 31,275 separate firms in the vicinity, the survey indicated three major factors that would contribute toward an intelligent plan to tap the commercial air conditioning sales potential. They are:

1. Since, in the majority of cases it is very difficult to prove to the customer that he can pay for his equipment in a reasonable length of time out of the profits it would make, the best selling point is "owner satisfaction."

2. A vast sales promotion program is needed to create customer desire for commercial air conditioning not only by providing an attractive price, but by demonstrating the various advantages of such equipment.

3. Office air conditioning may offer an important market in the postwar world.

For the purposes of the survey Duquesne defined air conditioning as "summer cooling with refrigeration." Interviews were made in both summer and winter.

Leaving office air conditioning to

be considered separately, the Duquesne survey first collected viewpoints of both users and non-users of commercial air conditioning equipment. This category included department stores, hotels, hospitals, restaurants, jewelry stores, drug stores, funeral homes, furniture stores, apparel stores, theaters, banks, bowling alleys, beauty shops, barber shops, and bakeries.

Present owners, the survey found, were "overwhelmingly satisfied" with air conditioning. It had "helped the summer slump, kept the place cleaner, added prestige, attracted the favorable attention of customers, and improved working conditions at a reasonable operating cost." Concerning how much profit air conditioning had produced, however, those interviewed were not quite so definite. Some 58% said they had expected it to pay for itself when they bought it. The rest already claimed to have made the first cost of the equipment.

This latter point, showed a need for a change in sales strategy, according to the poll. Speaking of the "pay-for-itself" theory, Duquesne said: "... the profit story will have to be examined very critically. From the evidence of owner satisfaction, it may be that 'Ask the man who owns one' would be a better foundation for a sales plan."

Among non-users results of the survey gave evidence of a possible

Air Conditioning Market In the Pittsburgh District

	No. in Group	No. with Air Cond.	No. with No Air Cond.	Present Total Hp. of Air Cond.	Will Buy Soon			
					Total Who Will Buy	Hp.	\$ of Equip.	EA RWH
Apparel	734	97	637	839	194	1,032	223,277	712,080
Bakery	275	7	268	38	41	102	25,500	79,380
Bank	127	5	122	778	8	160	32,000	122,880
Barber	114	2	112	8	9	21	5,200	19,941
Beauty	964	12	952	81	128	500	111,000	269,500
Bowling	90	2	88	15	5	21	5,200	9,282
Department Store	21	9	12	4,848	4	954	308,000	518,976
Drug	605	25	580	251	57	409	94,380	517,794
Funeral	288	14	274	125	74	530	108,915	155,820
Furniture	155	4	151	306	5	270	54,000	186,300
Hospital	34	9	25	108	8	74	19,975	60,236
Hotel	26	13	13	670	8	125	33,450	101,750
Industrial	32	...	...	1,689	...	...	NOT INCLUDED	...
Jewelry	166	28	138	192	28	62	15,525	54,188
Office	10,127	383	9,744	2,320	1,510	2,793	838,050	2,273,502
Residential	...	173	...	211	...	...	NOT INCLUDED	...
Restaurant	1,891	67	1,824	1,211	296	1,924	409,405	1,885,520
Theater	139	39	100	4,024	23	994	198,900	473,144
Miscellaneous	15,519	66	15,453	1,417	270	1,237	278,325	705,090
Total	31,275	987	30,493	19,131	2,668	11,208	2,761,102	8,118,383

This chart is part of one prepared by the Duquesne Light Co. summarizing the air conditioning market potential in the Pittsburgh District. It reportedly covers all the various types of commercial establishments in the area. With the exception of Pittsburgh department stores and theaters (all of which were contacted) only a certain

percentage of the other organizations were contacted for the survey. The terminology "buy soon" means within two years after materials become available, Duquesne said. Not shown in the NEWS reprint of the chart is the "buy sometime" category which would cover a five year period after materials become available.

\$5 million market for new installations within the first five years after equipment becomes available. A total of 17% of those interviewed said they would buy within two years, 13% within five. Said the report:

"These figures, plus those for office air conditioning, indicate that there is a market ... for 11,208 hp. of air conditioning soon, [within two years]

and 10,849 hp. sometime [within five years]. This compares with a present installed total of 19,131 hp. ..."

Of course, not all those interviewed were enthusiastic about air conditioning, for only 5% said that air conditioning would be the first thing purchased when materials become readily available. The reasons for this sales resistance are interesting. For instance, 70% maintained they would not buy "chiefly because of high cost" or because they felt they "did not need it." Only 15% felt they were losing any business because they did not have air conditioning. This figure, however, was offset by 25% who said they might possibly be able to get some of their competitors' business if they installed air conditioning.

How to chart out a sales campaign that would tend to make it more of a "sure thing" brings up the problem of "brand-consciousness." Approximately 75% of those interviewed said they had no preference among air conditioning manufacturers. Another 55% admitted they did not even know the name of any company making air conditioning. Only 16% claimed they knew local distributors of air conditioning equipment.

Emphasizing that the air conditioning market is "not engineering" but a "sales promotion job," Duquesne further stated: "The twin obstacles to more sales are: 'I do not need it' and 'It costs too much' ... but though the first might be circumvented, "... the price problem will have to be solved by the manufacturer. Apparently the manufacturers and distributors will have to take steps to re-establish themselves in the public mind as air conditioning suppliers and sales organizations will have to get better coverage."

Owners: Performance?

"From these answers asked only of those owning air conditioning, the survey stated, it appears that, while the performance and cost of operation have not pleased everyone, there is general satisfaction with the equipment to such a degree that performance is not a major problem."

Q. Is your air conditioning machinery operating satisfactorily?

A. Yes, 83%.
No, 17%.

Q. Had any trouble in previous years?

A. Yes, 29%.
No, 71%.

Q. What kind of trouble?

A. Motor and compressor, 12%.
Replacement of gas, 4%.
Equipment too small, 3%.
Miscellaneous, 10%.

Q. About what is your maintenance cost during the year?

A. Can cite figure, 81%.
Do not know, 19%.

Q. Is your maintenance cost reasonable or excessive?

A. Reasonable, 80%.
Excessive, 11%.
Do not know, 9%.

Q. About what is your operational cost per season?

A. Have some idea, 56%.
Do not know, 44%.

Q. Is this cost reasonable or excessive?

A. Reasonable, 62%.
Excessive, 9%.
Water charges excessive, 3%.
Do not know, 26%.

Q. Air distribution satisfactory?

A. Yes, 91%.
No, 9%.

(Concluded on next page)

See them at the **SHOW**
Booth 1204

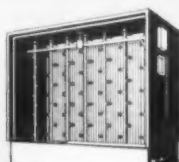
Unit Coolers are the newest addition to the complete usAIRco line of air conditioning equipment. usAIRco Unit Coolers are available in single and double fan models with basic ratings from 176 BTU

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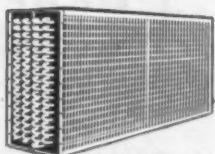
Factory Representatives in Principal Cities



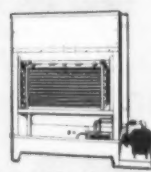
REFRIGERATION AIR
CONDITIONING UNITS



AIR WASHERS



HEATING AND
COOLING COILS



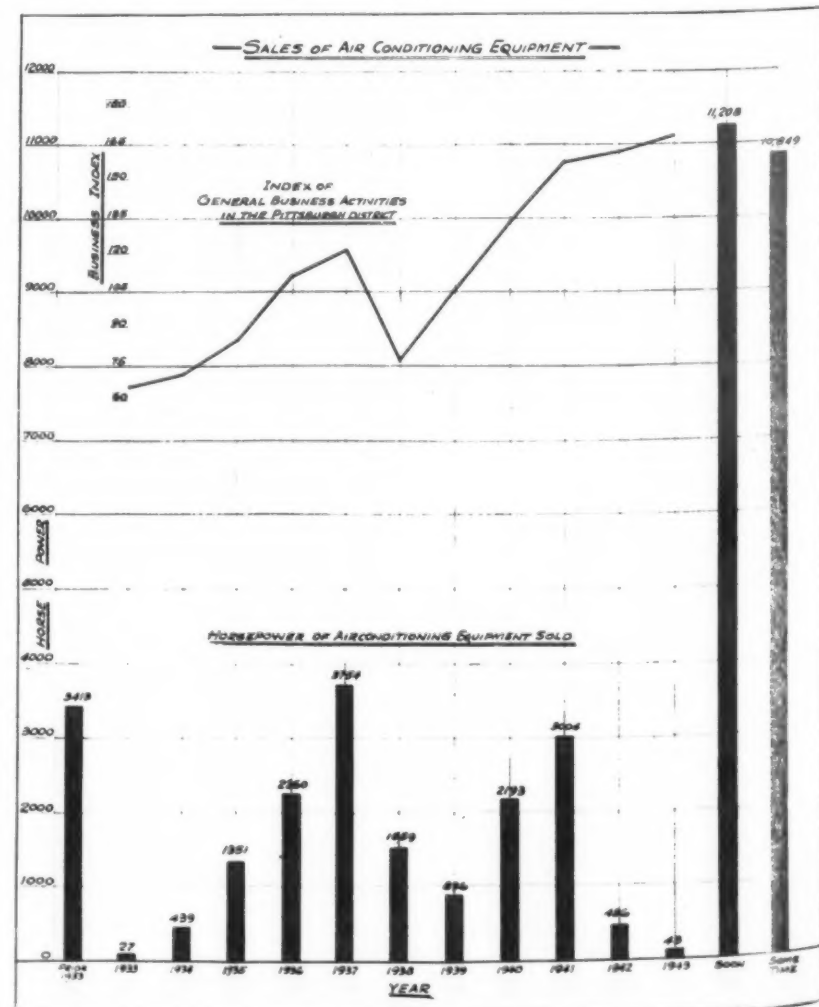
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Conditioning and Heating Equipment



Duquesne Survey Results Cover the Pittsburgh Air Conditioning Market

(Concluded from preceding page)

Q. Fan used for ventilation in winter?

A. Yes, 61%.
No, 39%.

Owners: Money-maker?

Declared the survey: "It appears that the money-making characteristics [of air conditioning] are hard to prove."

Q. Do you ascribe any of your present business to the fact that you have air conditioning?

A. Yes, 72%.

No, 21%.

Do not know, 7%.

Q. Have you recovered original equipment cost out of air conditioning?

A. Yes, 42%.

No, 46%.

Do not know, 12%.

Q. How did you recover it? (Yes group only.)

A. Increased business, 21%.

Customer comfort, 3%.

Employee efficiency, 3%.

Less spoilage, 1%.

Personal comfort, 1%.

Do not know, 13%.

Q. Will it pay for itself eventually? (No and Don't Know groups.)

A. Yes, 30%.

No, 7%.

Do not know, 21%.

Q. Did you expect it to pay for itself in a few years?

A. Yes, 58%.

No, 27%.

Do not know, 15%.

Q. What was your reason for buying? (No, Don't know groups.)

A. Customer comfort, 17%.

Personal comfort, 8%.

Employee comfort, health, 8%.

Absolute necessity, 5%.

Competition, 2%.

Miscellaneous, 5%.

Q. Any nearby competitors have air conditioning before you?

A. Yes, 22%.

No, 73%.

Do not know, 5%.

Q. Did this affect your decision to buy? (Yes group.)

A. Yes, 8%.

No, 13%.

Do not know, 1%.

Q. Any air conditioning job you know influence the decision to buy?

A. Yes, 20%.

No, 65%.

Do not know, 15%.

Owners: Other Advantages?

From these answers, said Duquesne, "It appears as though the users are pretty well sold on the fact that air conditioning does help their summer slump, keep the place cleaner, adds prestige to their establishments, improves working conditions, and attracts favorable attention from their customers."

Q. How does summer heat affect your business?

A. Business decreases, 67%.

Business increases, 8%.

No effect, 25%.

Q. Air conditioning changed this any?

A. Improved business, 71%.

No effect, 19%.

Do not know, 10%.

Q. Your place of business cleaner since you installed air conditioning?

A. Yes, 70%.

No, 21%.

Do not know, 9%.

Q. Is cleanliness of any importance?

A. Yes, 64%.

No, 11%.

Do not know, 25%.

Q. What has been the effect of air conditioning on you and your employees?

A. Favorable effect, 92%.

Unfavorable effect, 8%.

Q. Does having air conditioning add to your prestige in the community?

A. Yes, 92%.

No, 3%.

Do not know, 5%.

Q. Any customer complaints?

A. Yes, 21%.

No, 78%.

Do not know, 1%.

Q. Any favorable comments from customers?

A. Yes, 95%.

No, 5%.

Owners: Satisfied?

"From these answers," the report declared, "it appears that the present users of air conditioning are very

well pleased with their equipment."

Q. Would you recommend air conditioning to others in the same type business as you?

A. Yes, 97%.

No, 3%.

Q. If you could recover money spent for air conditioning, would you sell it?

A. Yes, 7%.

No, 89%.

Do not know, 4%.

Non-Users: Why No Purchase?

From these questions asked only of non-users it appears, the survey observed, that "the customers know very definitely why they did not buy, so that any air conditioning sales program is immediately confronted with the age-old problems of creating the desire and making the price attractive."

Q. Why didn't you buy air conditioning when it was available?

A. High cost, 42%.

Not needed, 38%.

Lease unsatisfactory, 11%.

Too new, 5%.

Miscellaneous, 9%.

Q. Anyone ever asked you to buy air conditioning?

A. Yes, 29%.

No, 69%.

Do not know, 2%.

Non-Users: Brand Conscious?

From these answers Duquesne felt that air conditioning manufacturers and distributors "will probably want to do some work to re-establish their names. . . ."

Q. Can you name some air conditioning manufacturers?

A. Do not know any, 55%.

Know one or more, 45%.

Q. Which one would you prefer?

A. No preference, 72%.

Q. Can you name any local air conditioning distributors?

A. No, 84%.

Q. Which one would you prefer?

A. No preference, 89%.

Office Air Conditioning

One of the more significant questions asked of over 1,000 offices in the survey was the following:

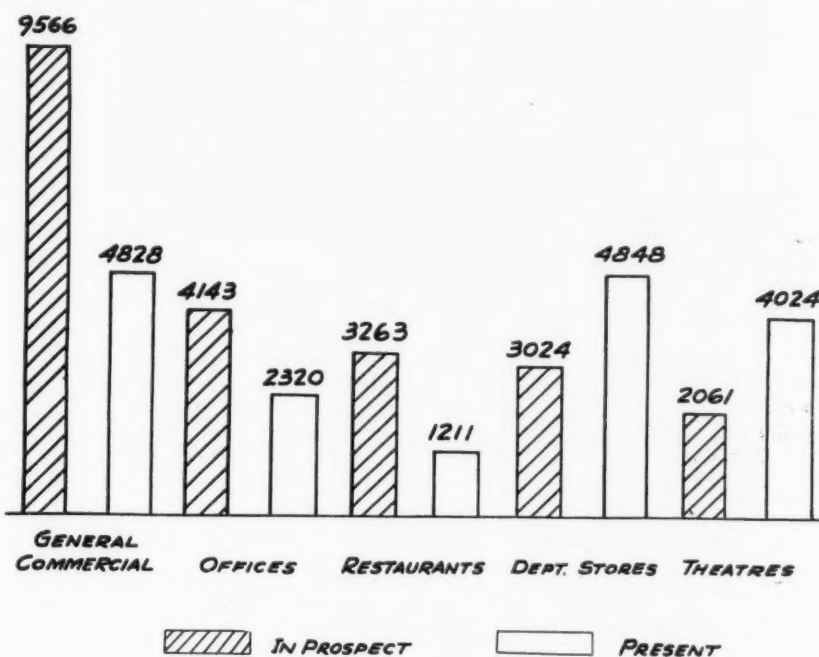
Q. Would you like summer air conditioning for your office?

A. Yes, 42%.

No, 41%.

Do not know, 5%.

Prospects for Expanding Present Market



"See You at the EXPOSITION"

**OCTOBER 29
THRU NOV. 1st**

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4th ALL INDUSTRY REFRIGERATION and AIR CONDITIONING EXPOSITION

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- FOR STORES
- FOR OFFICES
- SMALL PLANTS

2

STAGE

COMPRESSOR Unit

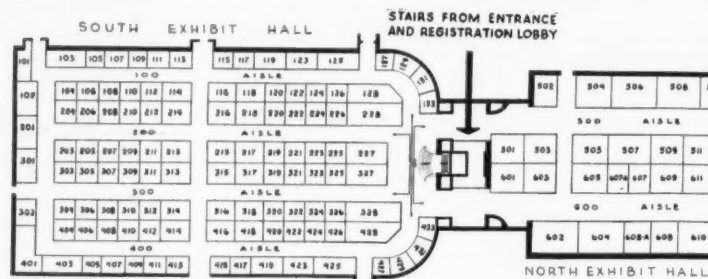
DISTRIBUTORS, ATTENTION: We give you a special invitation to visit the GEMCO Booth 412, South Exhibit Hall, where our technical experts will demonstrate the mechanical superiorities of this modern Unit. Desirable distributorships are available. We'll be seeing you.

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Final All-Industry Show Exhibition List and Booth Location

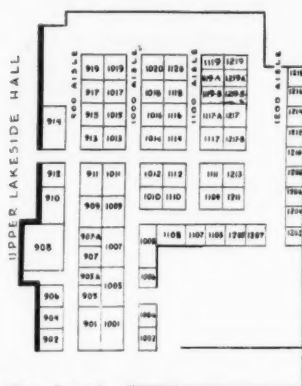
Ace Ice Cream Cabinet Co.....	501	Brown Electric Co.....	207
Acme Industries, Inc.....	314	Earle E. Brown Organization.....	1006
Air Conditioning & Refrigeration		Brunner Mfg. Co.....	321 & 323
News.....	507	Brunswick-Balke-Collender Co.....	904
Aircraft Service Co.....	319	Bundy Tubing Co.....	407
Alco Valve Co.....	914	B. H. Bunn Co.....	1119B
All-American Meat & Bone Cutter Co.	1202	Bush Mfg. Co.....	610
All Steel Equipment Co.....	315	Butcher Boy Cold Storage Door Co..	113
Amana Society, Refrigeration Div...	505	D. R. Card Co.....	105
The American Brass Co.....	609	Carrier Corp.....	1109 & 1111
American Coils Co.....	911	Century Electric Co.....	703
American Flange & Mfg. Co.....	119	Chicago Seal Co.....	502
American Injector Co.....	126	Chrysler Corp., Airtemp Div.....	404-6-8-10
American Mfg. Co., Inc.....	1211 & 1213	The Cleveland Refrigerator Co.....	913
American Refrigerator & Machine, Inc.	711	Complete Refrigerator Supply.....	1018
The American Society of Refrigerating		Container Corp. of America.....	325
Engineers.....	608A	Coolstream Corp.....	303
Ansul Chemical Co.....	713	Copeland Refrigeration Corp.....	705 & 707



Arcade Mfg. Div. of Rockwell Mfg. Co.	1216
Armstrong Cork Co.....	906
Automatic Products Co.....	223 & 225
Anemostat Corp. of America.....	1110
Baker Ice Machine Co., Inc.....	506
Balsa Equador Lumber Corp.....	1017
Biro Mfg. Co.....	919
R. H. Bishop Co.....	103
Black, Sivalis & Bryson, Inc.....	108
Bonney Forge & Tool Works.....	1010
Boston Technical Institute.....	1119
Bridgeport Thermostat Co., Inc.....	307

Cordley & Hayes.....	1004
Cornelius Co.....	205
Curtis Refrigerating Machine Div. of	
Curtis Mfg. Co.....	212 & 214
Cushman & Denison Mfg. Co.....	308
Cutler-Hammer, Inc.....	304 & 306
Davison Chemical Corp.....	208 & 210
Day & Night Mfg. Co.....	312
Dayton Rubber Mfg. Co.....	425
Detroit Lubricator Co.....	503 & 603
Dole Refrigerating Co.....	605
Doughboy Industries, Inc.....	1110

Drayer-Hanson, Inc.....	403
W. A. Hammond Drierite Co.....	415
E. I. du Pont de Nemours & Co.....	418 & 420
Ecco Mfg. Co.....	201
The Electric Glass Co.....	1119A
Electric Power Equipment Corp.....	1007
Electromatic Div. of the Simoniz Co..	1015
Emery Thompson Machine &	
Supply Co.....	1114
Engineering Associates, Inc.....	918
Enrichment Products Co.....	1218
Eston Chemicals, Inc.....	907
Fedders-Guigan Corp.....	1002



Fleetwood Airflow, Inc.....	1020
Fleetwood Distributors, Inc.....	709
Food Freezing.....	907A
Food Locker Equipment Co.....	328
Frigidaire Div. of	
General Motors Corp.....	417 & 419
Frosted Food Field.....	405
Frozen Food Industry &	
Locker Plant Journal.....	422
Frozen Food Locker Manufacturers	
& Suppliers Association.....	908
Fruehauf Trailer Co.....	1117
General Controls Co.....	1120
General Electric Co.....	228, 411 & 413
General Engineering & Mfg. Co.....	412
L. H. Gilmer Co., Div. of	
U. S. Rubber Co.....	1118
The Goodsell Corp.....	601
Goodyear Tire & Rubber Co., Pliofilm	
Dept., Chemical Products Div.....	1108
Grand Rapids Brass Co.....	1205
Griffith Laboratories.....	427
Heat-X-Changer Co., Inc.....	426
Henry Valve Co.....	227
Highside Chemicals Co.....	122
Honor Brand Frozen Food.....	1214
Hudson Products Co.....	1217A
Ice Air Conditioning Co., Inc.....	706
Ideal Cooler Corp.....	211
Imperial Brass Mfg. Co.....	128
Jack & Heintz Precision	
Industries, Inc.....	102
Jamison Cold Storage Doors.....	1112
Jarrow Products.....	322
Jiffy Mfg. Co.....	1219A
Joliet Chemicals, Ltd.....	1208
Jordan Refrigerator Co.....	912
Kalamazoo Vegetable Parchment Co.,	
Wrapping Paper Div.....	107
Kason Hardware Corp.....	203
Kerolast Mfg. Co.....	224 & 226
Kinetic Chemicals, Inc.....	316
Kleen-Kut Mfg. Co.....	1021
Kold-Hold Mfg. Co.....	414
Kramer-Trenton Co.....	114
Lehigh Foundries, Inc.....	416
Lilly-Tulip Cup Corp.....	423
The Linde Air Products Co.....	1013
Lindley Box & Paper Co.....	120
The Livar Co.....	209
Locker Publications Co.....	110
Lynch Mfg. Co.....	216 & 218
A. E. MacAdam & Co., Inc.....	109
Marathon Corp.....	111
Marlo Coil Co.....	602
Master-Bilt Refrigeration Mfg. Co.....	712
Master Mfg. Corp.....	215
Mayflower Products, Inc.....	115
McIntire Connector Co.....	611
McQuay, Inc.....	701
Midwest Metal Stamping Co.....	117
Mills Industries, Inc.....	302 & 401
Minerva Wax Paper Co.....	512
Minneapolis-Honeywell Regulator Co.	1014
Minneapolis Show Case & Fixture Co.	905A
C. F. Mohr Associates.....	112
Monsanto Chemical Co., Merrimac Div.	608
Morton Salt Co.....	1219B
Mueller Brass Co.....	428
Nash-Kelvinator Co., Kelvinator Div..	1001
National Association of	
Refrigeration Contractors.....	1105
National Frozen Food Locker	
Association.....	908
National Gypsum Co.....	613

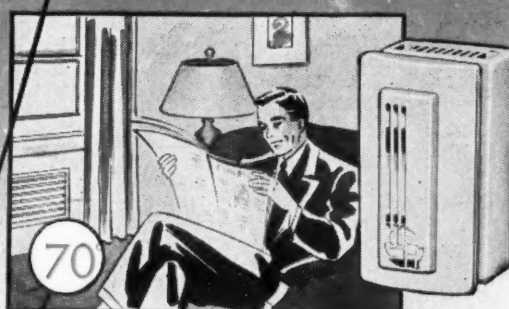
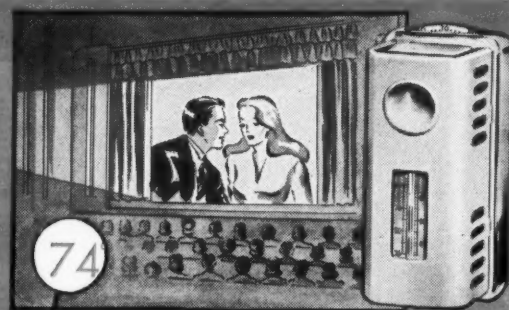
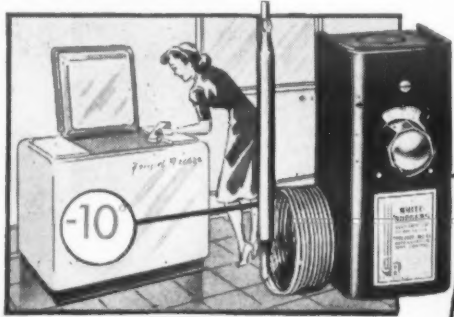
Nevinger Mfg. Co., Inc.....	317
Nickerson & Collins Co.....	104 & 106
Norge Div., Borg-Warner Corp.....	1005
Orley Freezer, Inc.....	916
Owens-Corning Fiberglas Corp.....	909
Pacific Lumber Co.....	127
Pacific Mfg. Corp.....	219
Peerless of America, Inc.....	702 & 704
Penn Brass & Copper Co.....	1210
Penn Electric Switch Co.....	125
Perfection Gear Co.....	220
H. A. Phillips & Co.....	1206
Pickwick Co.....	1016
Polar Hardware Co.....	124
Quick Frozen Foods.....	217
Quillen Bros. Refrigerator Co.....	1011
Ramsey-Bennet Co.....	318
Ranco, Inc.....	324 & 326
Redmond Co., Inc.....	221
Refrigeration Appliances, Inc.....	118
Refrigeration Corp. of American.....	508
Refrigeration Engineering Co.....	1207
Refrigeration Equipment Wholesalers	
Association.....	607A
Refrigeration Publications, Inc.....	708
Refrigeration Service Engineers	
Society.....	607
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Whitney Brothers, Inc.....	1212
Wolverine Tube Div.....	313
The Yoder Co.....	1012
York Corp.....	604

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No matter what the temperature application, White-Rodgers controls will take care of it...

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- accurately
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Rely on White-Rodgers temperature or pressure controls to perform exactly as you set them. Except for individual preferences you actually can forget them! Specified as standard by leading manufacturers of air-conditioning and refrigeration equipment, they bring you ease of installation, accurate and completely dependable performance. Write today for refrigeration catalog and installation data.



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Controls for Refrigeration • Heating • Air Conditioning

SERVICE SIMPLIFIED GREATER SATISFACTION LONGER OPERATIVE LIFE

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OIL SEPARATORS**



protect Coils, Condensers, Compressors, Valves and Dehydrators by picking oil out of the refrigerant stream and AUTOMATICALLY returning this oil to its proper place, the crankcase.

Aminco Oil Separators protect compressors by maintaining correct oil level in crankcase and by excluding oil from refrigerant stream they enable coils, condensers, valves and dehydrators to function most efficiently.

These oil separators are made for jobs from 1/2 H.P. to 120 tons and are used everywhere, ashore or afloat, where efficient refrigeration is desired.

Now available for use when "F-22" is used as a refrigerant. If required for this gas, please specify when ordering.

Full descriptive bulletins on request.

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William H. Cody, 2nd Unit, 10th Floor, Santa Fe Bldg., Dallas, Texas
J. C. Battles, 504 Bondi Bldg., Galesburg, Ill.
Export: Borg-Warner International Corp., 310 S. Michigan Ave., Chicago, Ill.

Novel Adaptation In St. Louis



For those customers who prefer not to enter a locker room where they would be subject to low temperatures, Delmar Food Lockers, of St. Louis, recently installed 150 new lockers which open up into the relatively warmer temperature of the processing room. All were immediately rented.

150 New Lockers Opening Into 'Warm Room' Suffer Only 1-2° F. Loss In Temperature

ST. LOUIS — Customers suffering from illnesses which make it unsuitable for them to be exposed to low temperatures, or elderly people who are loathe to enter the refrigerated locker room are now being attracted to Delmar Food Lockers, 700-unit locker plant here, since the management installed a novel "warm room."

Locker operator Merle Gray, head of the locker plant, added this convenience for his customers when conversation with regular patrons disclosed that several new people who sorely needed locker facilities hesitated to rent them because of fear of the cold.

There were enough such cases to make it worthwhile to offer special facilities," Mr. Gray said.

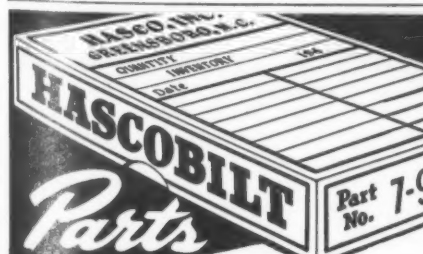
Mr. Gray's method of meeting these peculiar requirements was to reshuffle the locker arrangement at the rear of the main locker room, which permitted installation of 150 new metal lockers. These, however, instead of being constructed in a back-to-back bank as are the other units, are installed on the extreme rear wall, with their doors opening out into the processing shop immediately behind the main locker room. In this space, approximately 20 x 75 ft., Delmar Food Locker carries on all frozen foods merchandising, meat process-

ing, cutting, curing, custom wrapping service, etc.

Space was cut through the wall of the main locker room so that the 150 new units are actually part of the dividing wall between the processing shop and the refrigerated area. Customers thus can simply go into the processing room, open up their lockers, extract meat or other foods, and close the locker without being subjected to any more cold than a momentary cool draft from the interior of the locker.

Soon after installation, Mr. Gray made a thorough thermometer check of temperatures inside the 150 lockers, which of course, are partially exposed to outside temperatures, and found average interior temperature only from 1 to 2° F. higher than those in the 100% refrigerated space. Of course, there is more loss here than when the interior lockers are open—but these factors are negligible, he thinks.

The cost of building the "warm room lockers" have been amortized by applying rentals of \$25 a year for the first four rows most convenient to customers, and \$22 and \$20 for the higher rows. OPA allowed the differential in view of the specialized nature of the installation, according to Mr. Gray—and every unit was immediately snapped up.



HASCOBILT
Part 7-9

Packed in Special Cardboard Boxes or Containers

Offers

- (1) Complete inventory record.
- (2) Part numbers always visible.
- (3) Easily stored in bins or on shelves.

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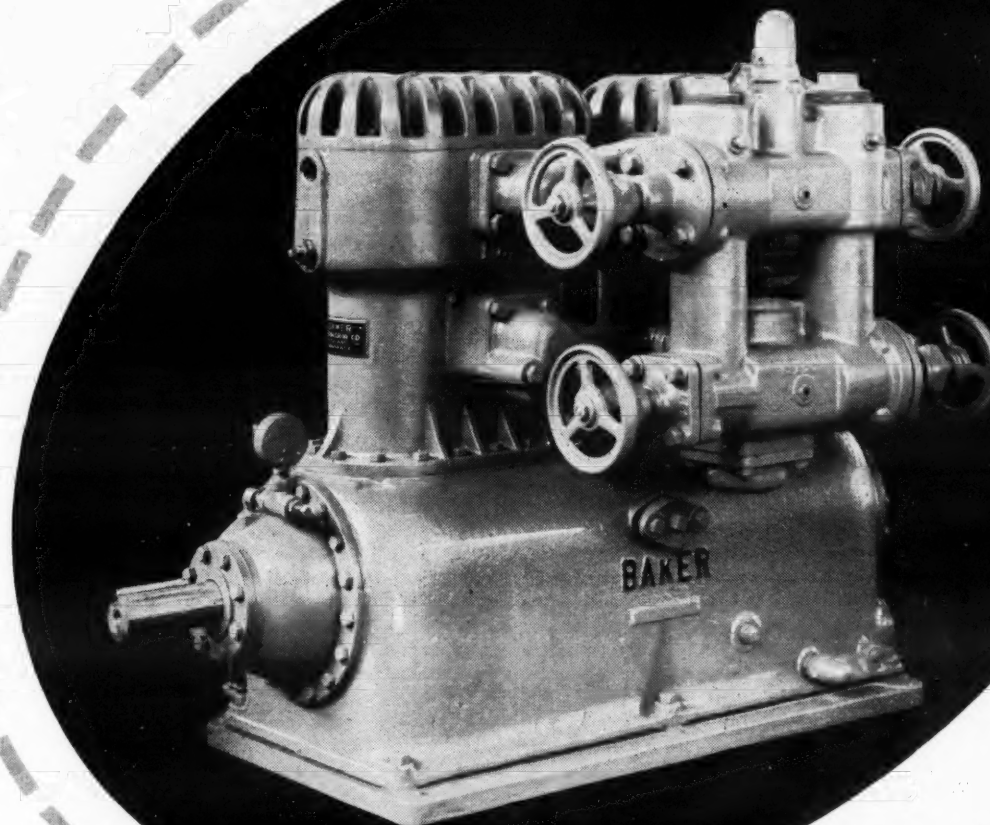
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The Newest Line of Modern Appliances in
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ALL-INDUSTRY
SHOW

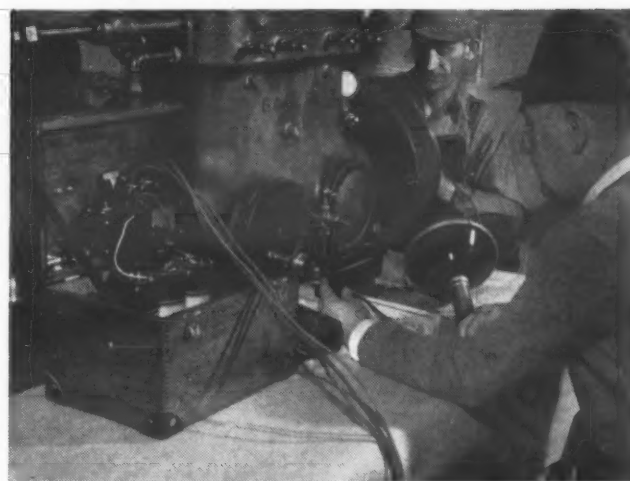
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...at the
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Oct. 29th thru Nov. 1st

Baker presents the new Series "F" Compressors

*Greater Capacity
with
Smaller Size*

**No longer a laboratory
dream. Production
scheduled for 1947.**



The Series "F" is the
result of months of inten-
sive laboratory testing.

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ICE MACHINE CO., INC. OMAHA

MANUFACTURERS OF REFRIGERATION AND AIR CONDITIONING EQUIPMENT SINCE 1905

How Parts and Equipment Wholesalers Serve the Refrigeration Field

By Ted Glou, President, Refrigeration Equipment Wholesalers Association

As president of the Refrigeration Equipment Wholesalers Association, one of the participating organizations in this all-industry show in Cleveland, I would like to review for the newcomers in the industry as well as for our old friends some of the functions of a refrigeration equipment wholesaler.

Before doing this I would like to go back a bit farther and define a REWA Refrigeration Equipment Wholesaler and how he differs from others selling at wholesale and retail. Briefly, the point of distinction of a REWA member is that he does not compete with his customers.

Our trade relations for the past decade have been outstanding in the friendliness and cooperation both financially and otherwise in promoting this industry. We are proud of our record of cooperation with our suppliers, a principal group consisting of the REWA group, and of our cooperation with our consuming group, the principal group being the refrigeration service engineers. Our individual members have worked with the American Society of Refrigeration Engineers in various capacities.

The parts and equipment wholesaler was originally established to serve the small users of the industry, as a supplier of parts needed in a hurry and, while he was expected to survive, his volume of business was not expected to be very great. The years immediately prior to the war

and the war years themselves have proven this a fallacy.

Today, the refrigeration equipment wholesaler is a supplier to the serviceman, the dealer, the distributor and the small manufacturer furnishing parts, accessories, unassembled equipment and unitary equipment which can be sold on a basis of not competing with one's customers.

Just a few years ago, a lavish estimate stated that the annual volume of the wholesalers was expected to reach between 8 and 10 million dollars. It is estimated conservatively that the volume of refrigeration business during the current year by REWA members alone will reach between 50 and 60 million dollars.

This expansion was not all due to conditions of the times. The progressive principles of good business were diligently applied and by providing and performing services previously not expected of a wholesaler, and on an economical basis, the many segments of the refrigeration trade looked to the refrigeration equipment wholesaler as their source for materials.

The refrigeration equipment wholesaler has two masters to serve: one, the prime manufacturer or the people who supply him; the other, the consumer, the consumer being the serviceman, the dealer, the contractor, the distributor, and the small manufacturer.

Performing two distinct types of

services, one to the producer or manufacturer and the other to the consumer, or the trade as we know it, the benefits are numerous. Since the benefits to each group are different, I would like to discuss them separately.

To a manufacturer, a refrigeration equipment wholesaler presents a trade group strategically located in every business area in the United States, Canada, and foreign countries. REWA members alone total approximately 160 firms operating over 250 well-stocked establishments throughout the United States. Thus, a manufacturer is able to sell his products at the lowest possible cost of distribution.

Today, when rising direct costs of the manufacturer are currently cutting into his profits, his distribution costs are being lowered, enabling an over-all profit picture to be maintained. The elimination of the credit problem alone is reason enough for a manufacturer to discontinue direct selling and distribute his products through the refrigeration equipment wholesaler.

Most wholesalers have salesmen calling on the trade who present to the manufacturer an intimate knowledge of the local markets and at the same time provide engineering help in the application of his products.

Maintaining ample warehouse facilities, on-the-spot selling is also featured. Trade journal advertising

They Guide Activities of R.E.W.A.



Included among the R.E.W.A. officers and directors are (seated, left to right) H. S. McCloud, executive secretary; Ted Glou, president; George Roche, vice president; (standing) Harold McCombs, past president; J. D. Ross, director; Alex Holcombe, Jr., treasurer; Joseph M. Mideke, director, and Edward C. Marsden, director. Not shown is Harold Stern, treasurer.

and mail order sales are being pursued aggressively to further promote sales.

In introducing new products, or educating the trade to the uses and applications of old ones, the refrigeration equipment wholesaler reaches every segment of the trade from the assembly manufacturer down through the distributor, the contractor, the dealer, the serviceman or the installer.

The wholesaler maintains at low cost a manufacturer's reputation by providing facilities for handling or replacing defective or out of warranty materials.

Most refrigeration equipment wholesalers distribute specialized catalogs, have extensive bulletin facilities, and by direct sales contact and display of merchandise are constantly painting a picture story for the manufacturer to aid in selling his products.

To the consuming user or the trade, the refrigeration equipment wholesaler provides many services. During the war it was the warehouse stock of the wholesaler that kept many of the war plants in operation and practically single handed kept all of the wholesale and commercial refrigeration apparatus in operation with the stocks of material on hand for immediate use. These stocks are being enlarged and diversified.

Maintaining these large diversified

stocks of material is making it unnecessary for the trade to maintain large inventories. Being strategically located in the trading areas, practically no segment of the trade is more than 24 hours away from his wholesaler.

Through local contacts such as salesmen, catalogs, bulletins and demonstrations in showrooms, the trade is kept up to date on new products, applications of old products to new uses, price changes, engineering data and other pertinent trade information.

Cooperative handling of returned goods for replacement or repair is just one of the trade headaches soothed by the wholesaler.

A quick review of the benefits to both the manufacturing group and the consumer or trade group will remove all doubt that without the refrigeration equipment wholesaler the cost of all refrigeration products would be much higher than they are.

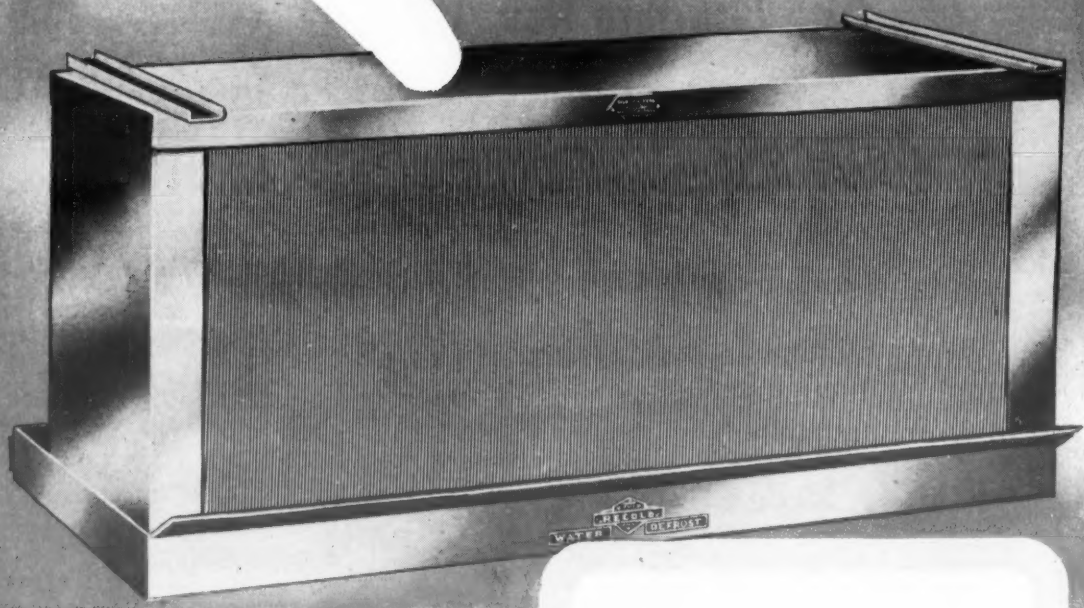
The refrigeration equipment wholesaler of tomorrow is providing better services to the trade by increasing the facilities. Larger showrooms with the space for displaying unitary equipment, larger stocks, credit facilities, larger and easier-to-use catalogs, increased bulletin service and trade journal advertising are just a few of the services he is performing to secure his place in this industry.

U.S. PATENT

NO. 2,219,393

RECOLD

WATER DEFROST PATENT UPHELD



Pioneering in the field of low temperature refrigeration, RECOLD introduced the water defrost system. RECOLD pointed the way and others have followed this leadership.

Now that the United States District Court has upheld the validity and charge of infringement of the RECOLD water defrost patent, only RECOLD and its licensees can supply water defrost for low temperature refrigeration.

On September 26, 1946 United States District Judge Pierson M. Hall upheld the validity of the RECOLD water defrost patent and sustained the charge of infringement.

REFRIGERATION
ENGINEERING INC.



LOS ANGELES
CALIFORNIA

Schedule For REWA Meetings

(Headquarters, Statler Hotel)

Monday, Oct. 28

- 9:00 a.m. to 12 noon—Registration (members only). Registration booth, south end of mezzanine, Statler hotel.
- 1:00 p.m.—Joint luncheon with Refrigeration Equipment Manufacturers Association. Cleveland hotel. Tickets required.
- 8:30 p.m.—Wholesalers invited to Refrigeration Service Engineers Society banquet. Hollenden hotel. Tickets required.

Tuesday, Oct. 29

- 9:00 a.m. to 12 noon—Final registration. Registration booth, south end of mezzanine, Statler hotel.
- 9:00 a.m. to 11:30 a.m.—Regional meetings, second floor, Statler hotel. Region 1, Parlor A; Region 2, Parlor M; Region 3, Parlor F; Region 4, Parlor B; Region 5, Parlor C; Region 6, Parlor D; Region 7, Parlor L; Region 8, Tavern Room; Region 9, Parlor H; Region 10, Parlor G.
- 6:30 to 7:30 p.m.—Cocktail party. Pine Room. Mezzanine, Statler hotel. Tickets.
- 7:30 p.m.—Banquet. Dancing. Grand ballroom, mezzanine, Statler hotel.

Wednesday, Oct. 30

- 9:00 a.m. to 11:45 a.m.—Closed meeting. Euclid ballroom, mezzanine of Statler hotel. Message from President Ted Glou. Reports from Geo. J. Roche, chairman of manufacturers relations committee; Lem V. Branson, chairman of trade relations committee; Edw. C. Marsden, chairman of government contact committee; R. E. Warwick, chairman of membership committee; and reports of 10 regional chairmen.
- 12 noon—Luncheon for members and wives. Grand ballroom, mezzanine, Statler hotel. Tickets.
- 12 noon—(Optional for ladies only.) Luncheon and card party. Lattice room, mezzanine, Statler hotel. Tickets.

Thursday, Oct. 31

- 12 noon—Joint luncheon with Refrigeration Equipment Manufacturers Association. Grand ballroom, mezzanine, Statler hotel.

Rich-Aire Sets Up In Corsicana, Texas To Produce Specialties

CORSICANA, Tex.—Rich-Aire, Inc., has been established here recently and has taken over the P. E. Richards Mfg. Co., announces Paul E. Richards, president.

Rich-Aire, Inc., has its factory at the Municipal Airport, Corsicana, with over 50,000 sq. ft. of manufacturing space.

This firm will manufacture heating, refrigeration, and electronic equipment. Refrigeration items include many sportsmen's items, household refrigerators, and commercial display cases.

Most prominent piece of equipment in the commercial display case line, according to Mr. Richards, is a refrigerated candy display case. It is expected that volume production on this unit will be reached in about 90 days.

Master Sales & Service Enlarges Stock Issue For Expansion Plans

MILWAUKEE—Master Refrigeration Sales & Service Co., national sales agent for Masterfreeze home freezers, walk-in coolers, and custom-built refrigeration equipment, has created 1,500 additional shares of no par value stock to meet the demand of its expanding operations, announces E. F. Anderson, president. This move brings the common stock authorization up to 2,000 shares.

Originally started in 1938 by Mr. Anderson, the company tripled its sales last year over 1944, and in the first eight months of this year doubled 1945 sales, according to N. H. Gutknecht, secretary and assistant general manager.

Extensive remodeling of the company's present facilities which will increase warehouse and display space is underway. A fully air conditioned streamlined building is planned.

Besides Mr. Anderson and Mr. Gutknecht, officers of the firm, which was incorporated Jan. 2, 1946, include K. A. Mathis, vice president who is in charge of commercial installation and service, and D. E. Anderson, treasurer. The latter was partner with E. F. Anderson prior to incorporation.

Nebraska To Standardize Appliance Job Training

LINCOLN, Neb.—A joint committee of management and labor from various classifications of business and industry will be named to set up standards of training for all veterans taking on-the-job training, which has been especially widespread in the Nebraska home appliance field, it was decided by an advisory committee appointed by Wayne O. Reed, state superintendent of public instruction.

The committee was recommended at a recent conference of industrial, labor, and veteran leaders.

Time-and-a-Half for Last 5 Hours of Week Cure For Absenteeism

CHICAGO—Because an average of 100 of his employees stayed away from work on Mondays for the last several months, the head of a Chicago electrical company devised a plan which cut absenteeism 50% and increased workers' wages.

Frank Rowell, Sr., president of the Guardian Electric Co., instituted a program offering time and one-half pay for the last five hours of each 40-hour week.

Under the system, a worker must be on the job all week to derive the extra benefit.

Only 228 workers of more than 700 at the plant missed time this week as compared with 451 last week.

Mr. Rowell said the increased payroll cost is balanced by greater production. In addition, the plan has attracted 152 job applicants.

Tempcon, Inc. Is Formed By Veterans As a New Commercial Distributor

MINNEAPOLIS—Officered by veterans with prewar experience in the refrigeration field, Tempcon, Inc. has been formed here to distribute refrigeration and heating equipment to dealers, contractors, and service men throughout Minnesota, North and South Dakota, Montana, Iowa, Wisconsin, and northern Michigan, John W. Wheeler, president and treasurer, has announced.

Both Mr. Wheeler and Walter Anderson, secretary, worked with Thermal Co., Inc. of St. Paul from 1937 until their induction into the service. Mr. Wheeler served in the navy in the Pacific, while Mr. Anderson served in the army in the south Pacific.

Mr. Wheeler had been secretary-treasurer of Thermal Co. On his return from service, he worked as assistant manager of Vincent Refrigeration Supply Co. here until the formation of the new corporation.

Mr. Anderson was employed by the Crane Co. and Northern States Power Co., both of St. Paul, before joining Thermal. He is said to have wide experience in both the service and wholesale supply segments of the refrigeration business.

Eugene Coulter, vice president, did refrigeration servicing and contracting from 1936 to 1941, when he was inducted into the army. He served in Europe and the south Pacific.

Tempcon, Inc. is located at 336 E. Lake St. here.

New Firm Is Organized By Stockton, Cal. Group

STOCKTON, Calif.—Central Valley Refrigeration Corp. has been organized in Stockton, Calif., with a capital of \$100,000. Directors are: J. L. O'Brien and H. C. Kumpton, both of San Francisco; and H. D. Finlayson, of Berkeley, Calif. The new corporation is represented by Neumiller, Ditz, Beardslee & Sheppard, Stockton, Calif.

Wisconsin Contractors Association Formed

MILWAUKEE—The Wisconsin Refrigeration Contractors Association was formed at a meeting here Oct. 14, with more than 100 members of the industry present.

Fred Boehme of Fred Boehme, Inc., acted as chairman of the organizational session. Nucleus for the new group was a Milwaukee organization of contractors that had functioned in the National Refrigeration Service Council program during the War.

Plans are being made to affiliate with the National Association of Refrigeration Contractors. Among proposed activities discussed was action to bring about an adequate state licensing law.

Adame Ice Machine Co.

VERNON, Calif.—Adame Ice Machines is the firm name under which Nathaniel R. Adame has published a certificate that he is conducting business at 7320 S. Compton Ave., here.



Model NM1B.
Capacity 5 gals. per hour.



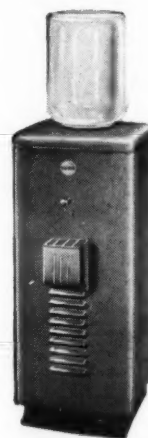
Model NM2B.
Capacity 10 gals. per hour.



Model NM3B.
Capacity 15 gals. per hour.



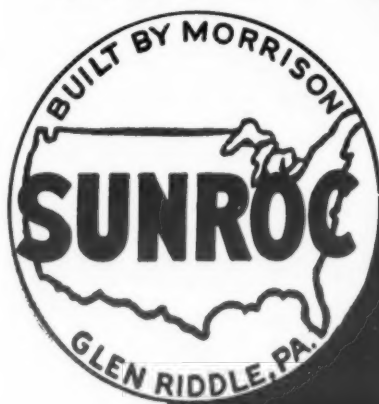
Model NM4B.
Capacity 30 gals. per hour.



Model US7B2 (Bottle Cooler).
Capacity 3 gals. per hour.



Cafeteria Model.
(Five large-capacity models).



America's
most complete
line of WATER COOLERS

Sunroc specializes in water coolers... makes the finest and most diversified line of water coolers on the market today. The post-war line of Sunroc Water Coolers embraces a wide range of AC and DC models engineered to meet varying business, industrial, and institutional needs.

With sights held to the national market, Sunroc backs its top-grade, nation-wide distributor and dealer organization all the way. Backs it with merchandise now. Backs it with full factory cooperation in the field. Backs it with intensive promotion, hard-hitting national and local advertising, sharp-shooting direct-mail to selected prospects... unremitting sales effort designed to hold and widen Sunroc's margin of leadership.

If you see yourself in the Sunroc picture, you will want full information on Sunroc's product, prospects and plans. The coupon below is the first step toward a Sunroc franchise... act today. Sunroc Refrigeration Company, Glen Riddle, Pa.

SUNROC REFRIGERATION COMPANY, Glen Riddle, Pa.

Gentlemen:

Please send me full particulars on the Sunroc Water Cooler dealer-franchise, and your story of "One Product, One Price, One Policy."

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I am now a water cooler dealer
not distributor

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DEPENDABLE
Refrigerants

"EXTRA DRY
ESOTOO"
(Liquid Sulfur Dioxide)

"V-METH-L"
(Methyl Chloride)

Distributors of
"FREON" REFRIGERANTS
11, 12, 21, 22, 113

VIRGINIA
SMELTING COMPANY
NEW YORK • BOSTON • DETROIT



"There's nothing like a cool drink of water"

SUNROC

WATER COOLERS • GLEN RIDDLE, PA.

Apartment-House Frozen Food Plan Gets OK So Chicago Firm Begins Expansion Drive

Schedule: 10 Locker-System Installations a Month

By John Sweet

CHICAGO — Provided equipment came through as planned, the month of September was to mark the beginning of full-scale activities for Cliff Dwellers Frosted Foods, Inc., a local organization which hopes to develop its apartment-house locker program into a national operation.

This program presently involves leasing space in apartment-house basements, installing, renting, and servicing its own frozen food locker systems, and providing the food delivery service. Standard-brand foods, including Birds-Eye, now are purchased from distributors and delivered in a recently acquired refrigerated truck.

Cliff Dwellers' future-projects file contains plans for:

1. Its own brand of frozen foods.
2. Production of a large self-service frozen food dispensing case for stores.
3. A plant for processing frozen pre-cooked foods and an adjoining restaurant serving them as an advertising stunt.
4. The sale of locker equipment and the food service to residents of co-operatively owned apartment buildings.

Since its organization in January, 1945, the firm has devoted a large part of its efforts to research and development. These efforts have been mainly centered around Cliff Dwellers' first four installations (three in Oak Park, Ill. and one in Chicago) which Vice President J. P. Gobberdiel said are "proving entirely satisfactory to all parties concerned."

But now, with the experimental stage largely over and a locker system developed "which is in every way practical," Cliff Dwellers is ready to tackle a schedule calling for 10 installations a month. A number of

buildings already have been lined up, according to Mr. Gobberdiel.

The company is using two types of locker systems, a sectional model ranging from eight to 32 compartments and a smaller, self-contained unit comprising five compartments. They were designed for Cliff Dwellers by an engineering firm and are being manufactured by a midwest plant.

Each compartment of both models has a capacity of 3 1/4 cu. ft. Previously, the sectional model also contained individual lockers of 4.85-cu. ft. capacity, but these now have been dropped.

The basic unit of the sectional model has eight lockers and measures 36 in. wide, 36 in. deep, and 73 in. high. Additional sections can be attached to provide 16, 24, and 32 compartments.

These units, Mr. Gobberdiel explained, are equipped with sharp freezing shelves placed horizontally in the cabinet "so as to admit the sharp freezing of produce." Coils are attached directly to the shelves.

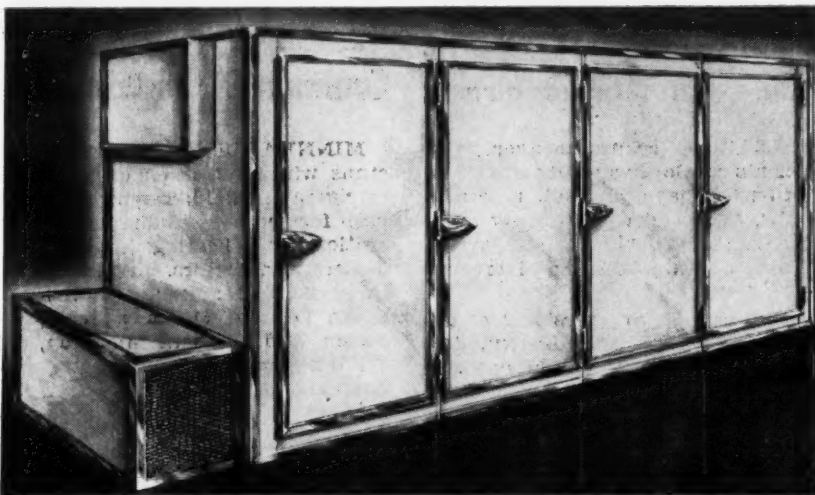
Each unit is provided with a temperature control and a visible thermometer. Insulation consists of 6 in. of spun-glass fiber.

Cabinets are formed of 051 burnished aluminum finished with two coats of clear lacquer. The wood frames are of kiln-dried oak, supported by resin-treated plywood panels.

When used alone, the section is powered by a 1/2-hp. condensing unit. Two sections require a 3/4-hp. unit, three a 1-hp. unit, and four a 1 1/2-hp. unit.

Designed for smaller apartment houses and also intended for use as a "come on" in the larger ones, the

32 'Cliff Dwellers' Can Store Food In This



If the hopes of Cliff Dwellers Frosted Foods, Inc., materialize, many apartment-house residents in the Chicago area will be using this frozen food locker system. Largest of the systems installed by the firm, it is a four-section job containing 32 compartments. Firm also rents, services lockers, delivers food.

five-compartment locker system measures 45 in. wide, 27 in. deep, and 70 in. high. The condensing unit is of 1/2 hp.

Orders for this unit, Mr. Gobberdiel said, now are valued at more than \$200,000. "We have found it to be very practical indeed and could install thousands of them if we were able to produce them fast enough," he declared.

First step in the procedure used by the firm in setting up its service is to lease from the building owner the space in which the unit is to be installed. This is usually done through the management company.

"Our rental arrangements with the building is based upon \$1.50 per

square foot per annum," Mr. Gobberdiel explained. "Leases are made generally for five years."

"As a practical proposition, it works out in this manner: a locker system containing 32 compartments would yield the building owner an annual rental of \$144." (This is figured on the basis of \$63 for the first section and \$27 for each of the other sections. It has also been the practice of Cliff Dwellers to pay power costs and a percentage of gross sales.)

After the lease has been executed, Cliff Dwellers mails its prospectus to tenants. This attractive, 12-page promotion piece, called "Dawn of a New Day," shows potential customers

what the equipment looks like and its specifications, tells them how the service operates, describes the advantages of frozen foods, and outlines a Birds Eye frozen food chart.

Explaining operation of the service, the prospectus informs tenants that "your building management is considering the advisability of installing a frozen food locker system in your building." "Pursuant to a plan submitted by Cliff Dwellers . . ." the prospectus continues, "a . . . locker system of sufficient capacity to provide storage space of approximately 3 cu. ft. for each tenant would be available at a cost of \$2 per month . . ."

"These lockers are so arranged that each of the tenants would have an individual key to their respective compartment. Birds Eye Frosted Foods, and other national brands, would be available for direct delivery to your locker."

"Locker users would be furnished with a list of frosted foods available, together with current prices, in the form of mailing cards, so that in order to effect delivery, all that you would be required to do would be to check the kind and amount of frozen foods desired and deposit the card in the mails, or you may telephone your order direct to Cliff Dwellers . . ."

(One of Cliff Dwellers' recent order blanks, which folds up into a prepaid-postage envelope, listed more than 100 varieties of vegetables, ice cream, sherbets, meats, baked goods and pastries, meats, chicken, and fish.)

"If your order is received within 24 hours of the weekly delivery date (later a daily delivery service will be maintained) it will be delivered (Concluded on Page 27, Column 1)

In The West It's Refrigeration Service Inc.

for

REFRIGERATION
SUPPLIES

TOOLS

ACCESSORIES

Advantageously Situated
To Service the Export Trade
In the Pacific Area

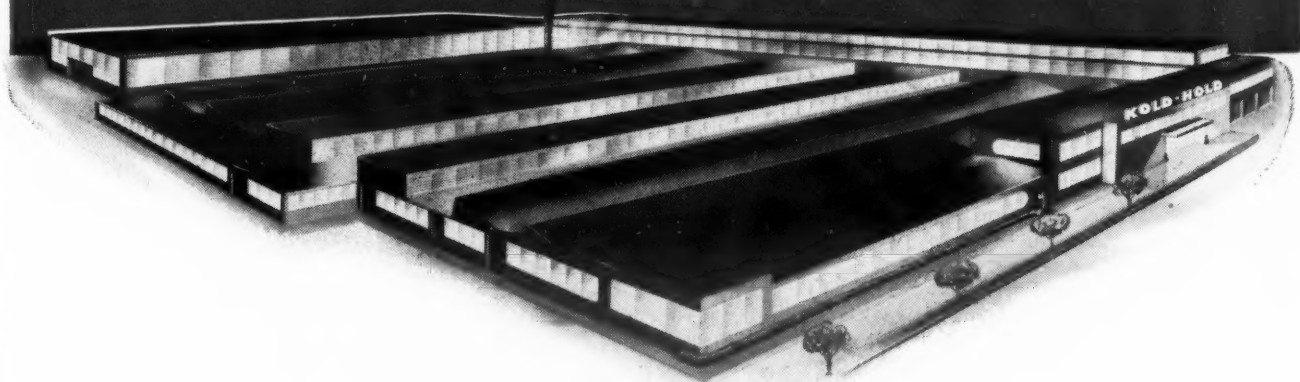
Cable Address
"RESINC" Los Angeles, Calif., U.S.A.

REFRIGERATION SERVICE INC.
3109-3111 BEVERLY BLVD. LOS ANGELES 4, CALIF.



KOLD-HOLD *Expands again!*

MORE AND BETTER KOLD-HOLD PLATE EVAPORATORS
WILL FLOW FROM THIS NEWLY-ACQUIRED PLANT



REMA CONVENTION
Oct. 28 to 31
Cleveland, Ohio
Booth 414

With this announcement, Kold-Hold fulfills a promise for post-war . . . a million-dollar plant to meet pressing demands created by the hundreds of new uses developing for versatile Kold-Hold evaporator plates and liners.

Kold-Hold's new plant more than triples former manufacturing space. Personnel has been greatly expanded . . . new methods of production have been perfected . . . new machinery added. Today,

under one roof . . . from sheet steel to famed finished product . . . Kold-Hold is producing a steady flow of better-than-ever units.

Standard Kold-Hold units are extremely versatile. The plates can be mounted separately on wall or ceiling, or combined in plate stands, banks and racks. Ideal for locker plants, sharp-freeze or cold storage rooms because they weigh less, mount flat, provide maximum cooling from minimum size plates. Wherever there's a freezing or cooling problem, there's an application for Kold-Hold plates or liners.

JOBBERS IN PRINCIPAL CITIES

KOLD-HOLD

MANUFACTURING COMPANY

500 E. HAZEL ST., LANSING 4, MICH.

Locker Systems Installed, Rented, Serviced, Filled by 'Cliff Dwellers' For 'Cliff Dwellers'

(Concluded from Page 26, Column 5)

and placed in your locker compartment. Accounts for food purchases will be rendered on the first of each month . . .

"Should you desire to arrange for a compartment, kindly sign and mail the enclosed card . . . If sufficient tenants desire locker space, the management will arrange to conclude arrangements now under consideration."

The "enclosed card" is a contract under which the tenant agrees to lease a locker for one year and to pay the quarterly rental in advance, with the contract to terminate if the subscriber moves. It also provides that Cliff Dwellers "shall not be liable in excess of the sum of \$35 for any loss of property resulting from the operation of said frozen locker system. . . ."

A note in the prospectus tells readers that Cliff Dwellers' lockers will be maintained at a temperature of "zero-minus," and that the company carries blanket insurance covering possible food spoilage as a result of fire or extended interruption of power service. Although the latter is considered "a very remote possibility," the concern feels "it is most prudent to give this protection to the customer."

According to Mr. Gobberdiel, the firm has found that only about 15% of a building's tenants respond at once to the prospectus. This, he said, is due not to a lack of interest, but to neglect in mailing the contract.



Cliff Dwellers uses this 5-compartment locker for smaller apartment houses and to stimulate interest among residents of larger ones.

"In many cases, we have arranged with the engineer in the building to contact the tenants after they have received the prospectus," Mr. Gobberdiel pointed out.

"As a result, we secure approximately 30% of the tenancy before the installation is made. However, when we receive rental contracts for 16

compartments, we will install our permanent system.

"Experience has proven that once the system is installed, other tenants are quick to avail themselves of the service."

"We have gone far enough in our experimental work in Chicago," Mr. Gobberdiel commented, "to know for a certainty that the tenants do like the locker service and that they will purchase foods in sufficient quantity to justify this service."

Meanwhile, Cliff Dwellers has been putting out feelers in other cities with a view to becoming a national operation as soon as sufficient equipment is available. Although actual operations outside the Chicago area have not yet begun, the company said it already has made several commitments and arranged for the leasing of a number of buildings.

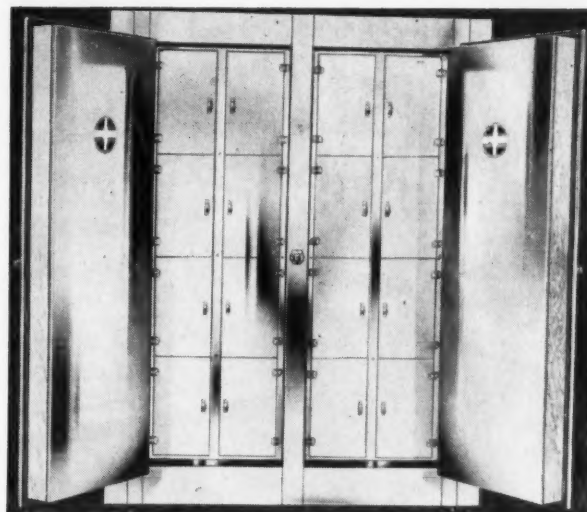
FOOD MAIN INTEREST

Eventually the firm plans to arrange for the private packing of frozen foods under its own label, since food, rather than equipment, is its main interest. When the volume of business becomes sufficient to warrant this, the main office will be the central buying agency of all its operations.

Some time ago, Cliff Dwellers was negotiating for a building in which to process pre-cooked foods, particularly bakery goods, and intended to operate a restaurant in connection with it to promote the foods and service. While this deal has now been pigeon-holed, it has not been abandoned and probably will be tried again later on.

A pilot model of the frozen food dispensing case, another of the firm's projects, is being developed and at least one large Chicago store has

One of Permanent Systems for Apt. Houses



When Cliff Dwellers signs up 16 apartment house dwellers to use its frozen food lockers and delivery service, it installs this two-section system in the basement. Each locker has a capacity of 3 1/2 cu. ft.

been approached regarding its future installation. Although details on its construction are not yet available, the self-service case is expected to feature drawers which the customer will pull out to get the food package, and which will receive another package when pushed back.

Latest of Cliff Dwellers' ideas is that of selling its locker systems to residents of cooperatively owned apartment buildings. This arrangement, the company says, will be more economical for such tenants than renting lockers.

Under this set-up, the sale would include an agreement authorizing Cliff Dwellers to provide the food service and to maintain the locker equipment. Here is the financial

picture which the firm intended to present in promoting this venture:

4-Section Freezer Containing 32 3-Cu. Ft. Compartments Capital Investment—\$2,850			
Operating Expense	Month	Annual	
Electric Current	\$ 5.20	\$ 62.40	
Depreciation	19.00	228.00	
Total Operating Expense	\$24.20	\$290.40	
Total Rental Income	\$64.00	\$768.00	
Less Operating Expense	24.20	290.40	
Net Profit	\$39.80	\$477.60	

This, the firm says, represents a return of more than 17% on capital invested.

Cliff Dwellers not long ago moved its offices from 134 North LaSalle to 30 East Adams.

Maxson Frozen Meals Drop From Sky To Newark Tables in First Ground Test

NEW YORK CITY—Maxson frozen, complete meals, some 500,000 of which have been served all over the world on planes of the Naval Air Transport Service and to passengers of Pan-American World Airways, are being made available to the American housewife for the first time through L. Bamberger & Co., Newark department store, as the first outlet.

In this test, a list of 10 menus ranging in prices from 95 cents up, is being offered.

The meals are contained in newly-devised, oblong plates, designed for compact piling in the home refrigerator. These plates are of a special paper fibre and the covers are lined with aluminum.

FINAL COOKING IN HALF-HOUR

At either end of the aluminum-lined cover, a narrow strip is removed when the meals are placed in the pre-heated home oven, at 400° temperature, for final cooking in about half an hour. The openings provide for air circulation. Meanwhile, the remainder of the aluminum-lined cover protects against evaporation and assures retention of juices and flavor.

The plates are partitioned, the largest of the three compartments being for the entree and the other two compartments are for the vegetables. The meals range from 11 to 12 ounces, the entrees being from 5 1/2 to 6 ounces. The meals, after being cooked in these plates, may also be

eaten from the plates which then may be thrown away.

Following the test at Bamberger's, the Strato Meals fashioned after the airplane Sky Plates, will be available in other retail outlets in Newark. Thereafter, they will be made available in a widening distribution area.

The 10 menus, now at Bamberger's follow:

Sirloin steak, mushroom and tomato gravy, lima beans, butter sauce, french fried potatoes, \$1.63.

Pot roast, savory pot roast gravy, Mexican corn, potato patty, \$1.18.

Roast turkey, dressing and gravy, garden peas, butter sauce, mashed sweet potatoes, \$1.21.

Swiss steak, gravy, lima beans, butter sauce, potato Boulangere, \$1.17.

Beef goulash, rich simmered gravy, garden peas, butter sauce, potato patty, \$0.98.

AND STEAK YET!

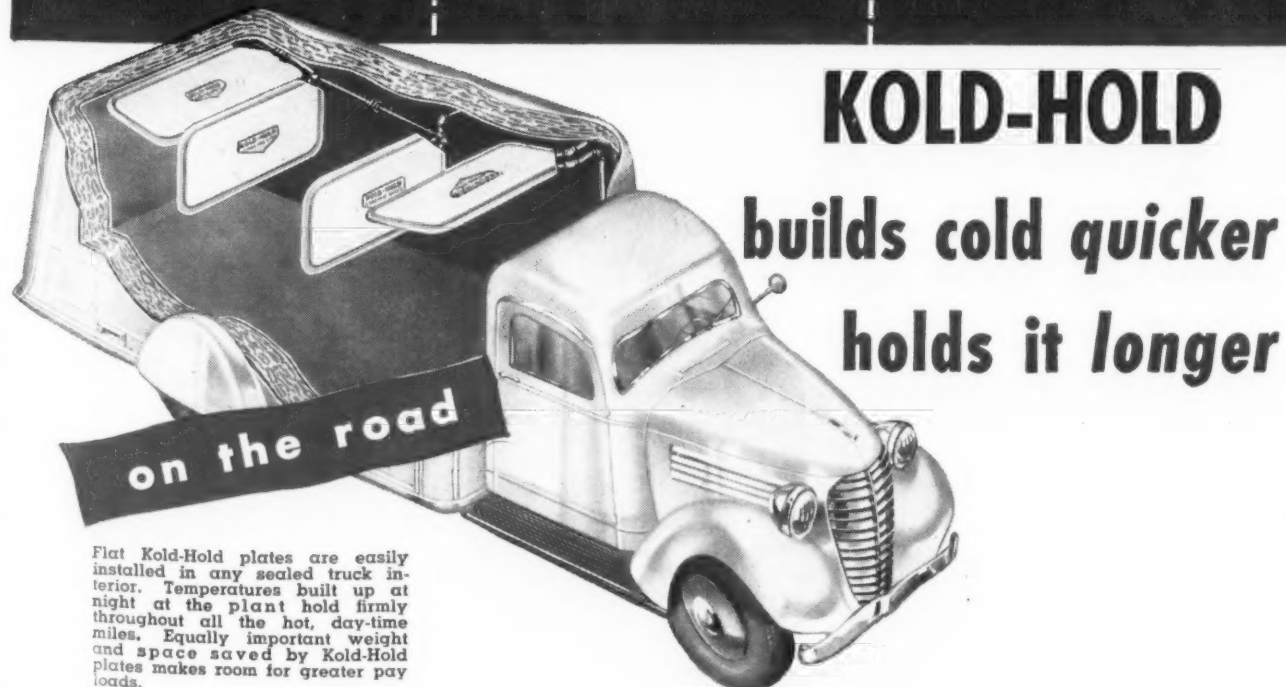
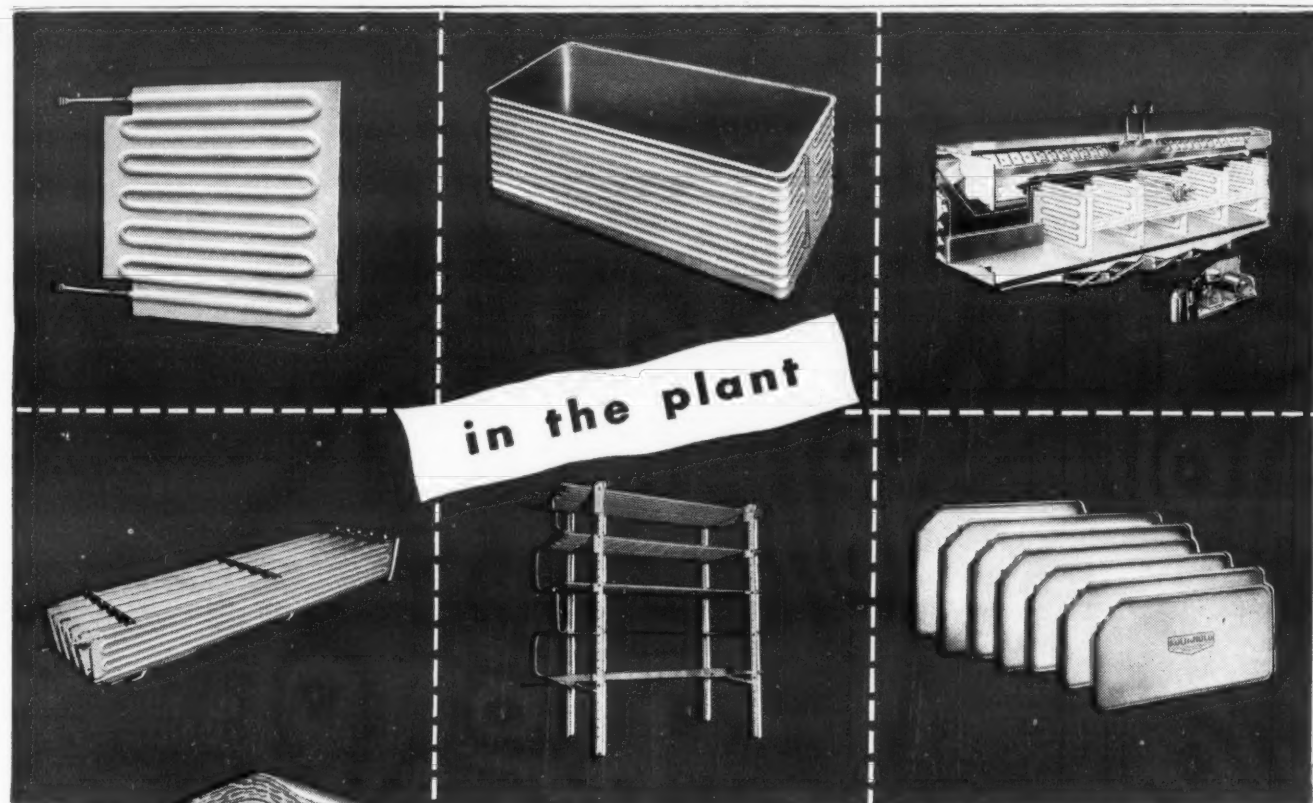
Tenderloin steak, sauce Bercy, green beans, butter sauce, French fried potatoes, \$1.57.

Fried hamburger, mushroom sauce, green beans, butter sauce, french fried potatoes, \$0.97.

Chicken croquettes, mixed beans, potato Boulangere, \$0.95.

Chicken paprika, French beans, potato patty, \$1.98.

Boston blue fish Courtbouillon, peas, butter sauce, French fried potatoes, \$1.08.



Flat Kold-Hold plates are easily installed in any sealed truck interior. Temperatures built up at night at the plant hold firmly throughout all the hot, day-time miles. Equally important weight and space saved by Kold-Hold plates makes room for greater pay loads.

Serpentine design unique to Kold-Hold evaporator type plates provides generous refrigerant passage. The fluid flows quickly, providing maximum prime cooling surface with highest possible rate of heat acceptance . . . pulls down the temperature of large spaces in a hurry. Embossed into heavy-gauge, cold-rolled steel, the serpentine channel edges are electroseam welded. No complicated tubes, piping or joints. A quality product, scientifically engineered. Built for peak performance . . . and built to last.

JOBBERS IN PRINCIPAL CITIES

KOLD-HOLD

MANUFACTURING COMPANY 500 E. HAZEL ST. LANSING 4, MICH.

DIRECT DRAW DISPENSERS • COOLERS • WORKBOARDS

BEER DISPENSING Equipment

REFRIGERATED LINES • FAUCETS • ETC.

RECOGNIZED . . .

From coast to coast, yes—and abroad, the Perlick line of beer dispensing equipment is recognized as tops in dependability and performance. New, improved models now being manufactured. Write for catalog No. 41.

R. PERLICK BRASS CO.

3110 W. MENDOTA AVE. MILWAUKEE 10, WIS.

Please CONSIDER THIS AS

AN INVITATION TO VISIT US
AT BOOTH 311 OF THE
Refrigeration & Air Conditioning
EXPOSITION
in CLEVELAND OCT. 29th to NOV. 1st

WE ARE LOOKING FORWARD TO SEEING YOU



ROTARY SEALS are available for over
752 models of refrigerator assemblies



ROTARY SEAL COMPANY

2020 N. LARRABEE ST., CHICAGO 14, ILL.

Canadian Office: 382 Victoria Avenue, Montreal 6, Quebec, Canada

Sandberg Co. Buys Plant To Make Conditioners

PORTLAND, Ore.—For the manufacture of air conditioning equipment, blowers, and oil burners, the H. J. Sandberg Co. has purchased the former Rheem Mfg. Co. plant on N. W. Yeon Ave. here, it has been announced.

In addition to the plant, Sandberg has acquired 12 acres of surrounding industrial property, it is said.

Sandberg is reportedly constructing a 15,000 sq. ft. addition to the 22,000 sq. ft. plant. The firm is also modernizing the original plant.

Aluminum Machining Data Prepared by Reynolds

LOUISVILLE, Ky. — Recommendations for the machining of aluminum alloys have been published by Reynolds Metals Co. in a 124-page manual which covers eight of the most important machining operations.

Individual charts covering turning, millings, shaping and planing, drilling, reaming, tapping, filing, and sawing give detailed data on toolings, speeds, and feeds for these machining operations. Besides these charts, there are 14 chapters of text devoted to discussions of machining problems.

Promoted by Honeywell



JAMES S. LOCKE

Has been named sales manager of the Controls Division of Minneapolis-Honeywell Regulator Co.

7 M-H Sales Heads Get New Assignments

MINNEAPOLIS—A series of seven supervisory changes including promotions of field and home office personnel of the Minneapolis-Honeywell Regulator Co. have been announced by C. B. Sweatt, executive vice president.

James S. Locke, who has been Chicago regional sales manager of the company's Air Conditioning Controls Division, has been named sales manager of the division and has transferred his headquarters to Minneapolis.

George D. Guler, who has been sales manager of the Air Conditioning Controls Division, has been transferred to Atlanta where he will serve as regional manager in that territory. He succeeds Albert H. Koch who has been made Philadelphia branch manager.

Succeeding Mr. Locke in Chicago will be J. F. Cumiskey, while L. C. Johnson has been promoted to branch manager in Milwaukee, replacing Harold Pride who has resigned to accept a position with a Honeywell distributor.

J. C. Dorsey, who has been acting branch manager in Philadelphia, has been placed in charge of manufacturers' business in Philadelphia and henceforth will supervise all such activity in the southern part of Honeywell's eastern sales zone.

In Minneapolis, T. S. Carley has been promoted to sales manager of the Wholesale Division and, in addition, will continue as sales manager of Honeywell's Stoker Controls Division.

Mr. Locke joined Minneapolis-Honeywell in 1932 in the New York service department. In 1934, he was transferred to the company's Modutrol Division in Minneapolis and a year later was sent to Chicago on the same assignment. During the war years, Mr. Locke supervised sales, engineering, installation, and service of the company's specially developed automatic control systems for aircraft engine test cells and in March, 1944, was elevated to Chicago Regional Manager of the Air Conditioning Controls Division which position he held until his latest advancement.

George Guler joined Honeywell in 1929.

Kennedy to Distribute Carl-Craft Co. Freezers On National Basis

DETROIT—The Kennedy Co. here has been appointed national distributor for the Ultra Cold home freezers, and commercial frozen food cabinets manufactured by the refrigeration division of Carl-Craft Co., Los Angeles, Charles R. Kennedy, Jr., has announced.

The freezers, for both home and commercial use, are available in 5, 8, 16, 20, 25, and 33-cu. ft. sizes. Immediate delivery is promised.

They will be sold, he said, to dealers under franchise only. Each franchise will be exclusive for that particular territory, he added.

The freezers, he explained, are of stainless steel, aluminum, and monel metal. The commercial models are equipped with a lucite price panel.

Three Michigan dealers have already been franchised, Mr. Kennedy reported. They are the Brandy Electric Co. of St. Clair, the McKay Coal Co. of Lansing, and P. E. Daubenspeck, Inc. of Pontiac.



SPLIT-SECOND Liquid Cooling!



WATER—There's a Temprite cooler to fit every type of drinking water application in office building, factory, school, etc., etc.



CHEMICAL & INDUSTRIAL USES—Temprite units cool water, caustics, oils and many chemicals in laboratory or manufacturing processes.



BEVERAGES—Accurate Temprite coolers are widely used in soda fountains, taverns and vending machines, or wherever carbonated and non-carbonated beverages are dispensed.

18 VERSATILE TEMPRITE MODELS HANDLE WIDE RANGE OF APPLICATIONS

The famous Temprite liquid cooling units, long recognized for instantaneous, split-second cooling, are available to you in a wide range of no less than 18 models. Units are noted for their compact, easy to handle size, perfect temperature control and large capacity.

The cooling coils are directly submerged in the refrigerant itself which results in split-second cooling and high operating efficiency.

All Temprite units are constructed entirely of non-corrosive materials. Can be applied to either new or existing applications. Write today for specifications.

TEMPRITE PRODUCTS CORP.

Originators of Instantaneous

80°—40°

Liquid Cooling Devices

43 PIQUETTE AVENUE

DETROIT 2, MICHIGAN

A pair of "Naturals"

AMERICAN

Cordially invites you to visit its display of "winners" at the Refrigeration Exposition in Cleveland, October 29 - November 1.

BOOTH 711
CLEVELAND AUDITORIUM

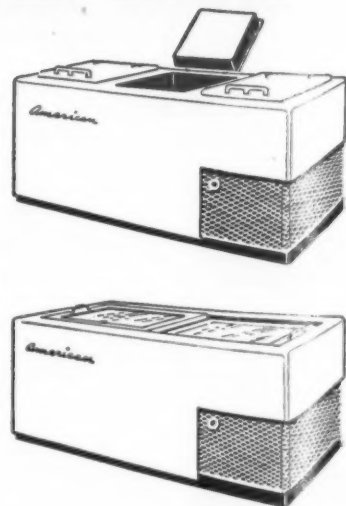
7-11

... See them at the ALL INDUSTRY SHOW

HOME, FARM and COMMERCIAL FREEZERS

You'll say they're "naturals" when you see them . . . these American Beauties! The farm and home 15 cu. ft. cabinet is equipped with 3 lift doors; the commercial model, designed for self-service display use, has two glass "finger-touch" sliding doors, so that commodities may be easily seen by shoppers. Aluminum construction, with dual-purpose quick-freeze and storage compartments. Cabinet sizes 8, 15 and 22 cu. ft.

Don't forget to inquire about the complete 1947 AMERICAN line, including our ARID-AIR Bottle Coolers and the new Extensional Walk-In Coolers in wood and metal.



Early delivery now being made on many Cooler and Freezer models. Write or wire—

AMERICAN REFRIGERATOR and MACHINE, INC.
2700 UNIVERSITY AVE. N. E., MINNEAPOLIS 13, MINN.

Servel's Electric Refrigeration Division Sets Up In New Plant Affording Increased Production

EVANSVILLE, Ind. — After a two months moving job, Servel, Inc. has completed the setting up of production facilities for its electric refrigeration division in a new, larger plant recently purchased from the Reconstruction Finance Corp., the company has announced.

The new modern red brick structure, in which Servel manufactured Thunderbolt airplane wings during the war, will add 240,000 sq. ft. of additional floor space to the electric refrigeration division, according to the company.

Because this floor space is open in character, Servel has been able to arrange machine tools and other basic processing equipment with the greatest possible efficiency, it is said. Flow of material from one operation to another now requires a minimum of delay and handling.

The building is equipped with more than 10,000 40-watt fluorescent tubes. It contains more than eight miles of lighting.

Thousands of electric, gas, water, air, and steam outlets are scattered through the building, providing facilities for all types of production equipment and employee conveniences.

Improved machinery, developed for ultra-precision operations during the war, has been installed. Many of the machine tools, the jigs, dies, and fixtures used on them, have been delivered to Servel only in the last 18 months, company production officials declared.

As the plant is now set up, it is reported, raw steel, brass, copper, and castings from Servel's own foundry start at one end of the building and emerge at the other end a finished product, crated, and ready to ship.

For the final assembly of hermetic power units, compressors and other critical elements, a special air tight room, originally used in painting and finishing airplane wings, has been fitted with special ventilation to insure absolutely clean air, Servel officials said.

Company officials expressed confidence that, during this period of material shortages, their decision to put expansion operations ahead of production will be justified.

Blueberry Farmer Uses Cooling Unit In Season, Chills, Stores Meat Later

IVANHOE, N. C. — To prevent picked blueberries at field heat from sweating when too quickly placed in pre-cooled refrigerated cars and thereby losing their attractive natural bloom, Reb-Kee farms near here has installed a York air conditioning system in its packing shed which reduces the temperature of the berries to 60° F.

Joe S. Mitchener of the Sneed-York Co., which made the installation, reports that a York 50 HW condensing unit and four No. 6 York polar flow units were used.

Three of the air units were installed in the chilling room measuring 30 x 18 x 9 ft., where a heavy blast of air at a small temperature differential and high relative humidity effects the cooling.

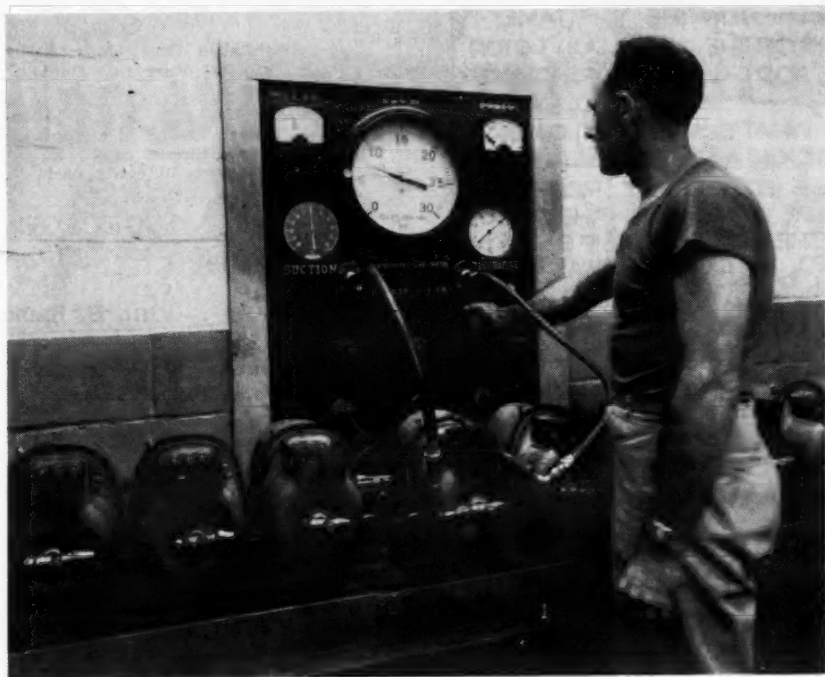
The fourth unit was installed in an adjoining storage room where the berries are held until shipped.

With this equipment, Dale Harrison, owner of Reb-Kee Farms, is said to be able to remove the field heat of the blueberries, which sometimes reaches 120° F., within 12 hours. The berries are then stored at 60° F. temperature until shipped.

Since the blueberry season lasts only about six weeks, Mr. Harrison faced the possibility that his refrigeration equipment would remain idle about 75% of the time.

However, by the installation of an exhaust fan in the wall dividing the chilling room from the storage room, air was delivered from the heavily cooled room to the other, returning it through a grille in the door, thus equalizing the temperature, Mr. Mitchener relates.

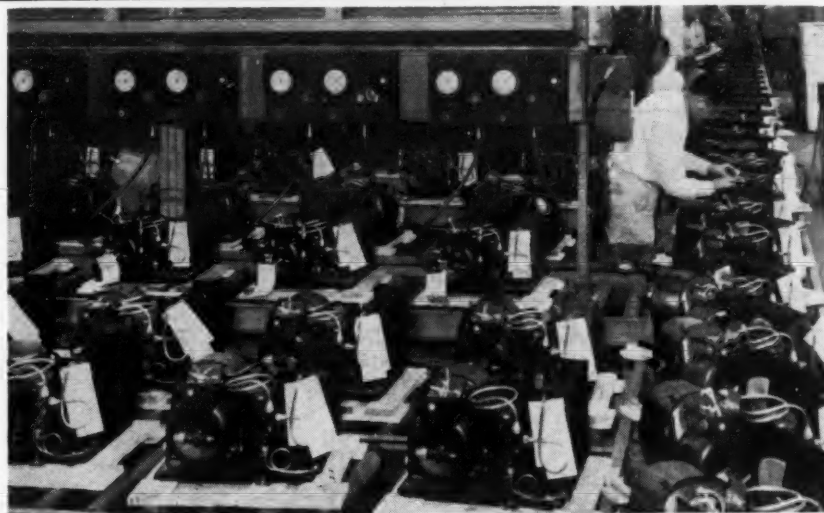
Portable salt bins were then installed and the equipment is also used to chill, cure, and store meats for surrounding farmers, he declared.



(Above) Every Servel "Supermetic" assembly must pass a final volumetric efficiency test over one of these flometers, which measures the number of cubic feet of refrigerant pumped per minute. Tests for noise level, valve leakage, and current consumption are carried out at the time.

(Upper right) One of the new plant's final assembly lines.

(Lower right) A 12-hour baking operation with current applied to the motors and hot, pre-dried air swept through the assembly insure dryness.



available again!

TO FRANCHISED DEALERS

FOR IMMEDIATE DELIVERY



Five Sided Refrigerated Pure Virgin Copper Tank. Refrigerant lines soldered on five sides to copper tank and concealed in walls.

NEW

Cabinet

Dimensions

65 1/2" x 38 1/2" x 29 1/2"

Total Capacity
14 Cubic Feet.

saves

SPACE

FOOD

PROFITS

ONLY COOLER

OPERATED EITHER

WET OR DRY!

Artkraft

BEV-FOOD

COMBINATION FOOD AND BEVERAGE COOLER

Central District Chicago Distributor

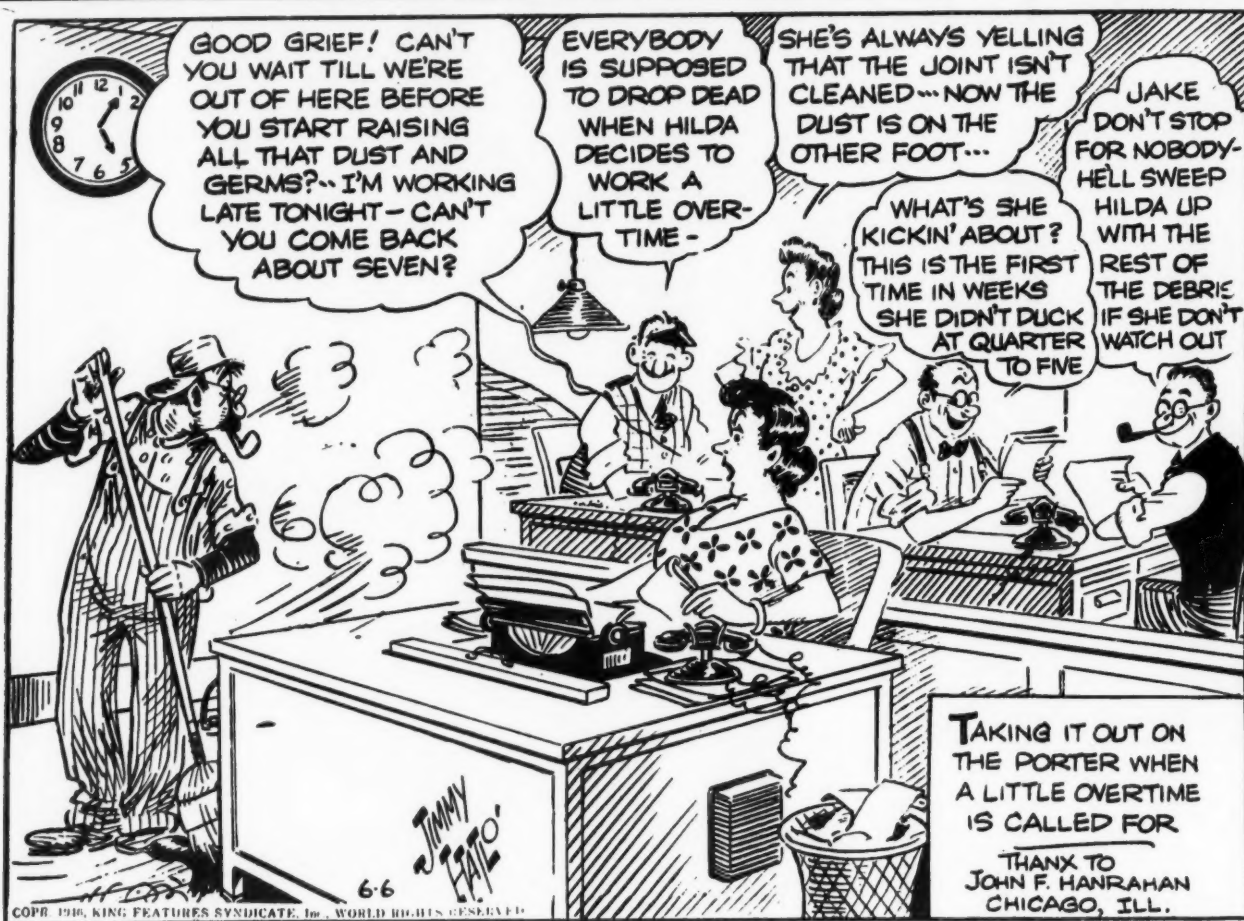
This self-contained "plug-in" unit engineered for outstanding performance in any type of store or institution is A MUST wherever foods or beverages are served. Can be used as both beverage cooler and food refrigerator. Has compartment for both wet or dry chilling of bottled and canned beverages. BEV-FOOD is the ONLY COOLER THAT CAN BE OPERATED WET OR DRY. Can be used entirely for dry refrigeration from bottom to top of each compartment. Top opening prevents spill-out of cold.

DIVISION OF ST. NICK'S WORKSHOP INC.

I. R. ROZETT

AND ASSOCIATES
2421 WEST DIVISION STREET
CHICAGO 22, ILLINOIS

They'll Do It Every Time By Jimmy Hatlo



Out With Special Privileges--Revise the Wagner Act!

Thermopane

REGISTERED U.S. PATENT OFFICE

The acceptance of *Thermopane*—Libbey-Owens-Ford's transparent insulating unit—has been tremendous! It is timely to emphasize the following:

- 1 *Thermopane* is a registered trade mark of the Libbey-Owens-Ford Glass Company;
- 2 Only Libbey-Owens-Ford makes *Thermopane*;
- 3 Only Libbey-Owens-Ford can call a transparent insulating unit *Thermopane*;
- 4 Only *Thermopane* has the Bondermetic Seal which bonds the panes of glass into one unit to guard against entrance of dirt and moisture into the dry air space;
- 5 The name "*Thermopane*" can and should be used when referring to the L-O-F product;
- 6 The word "*Thermopane*" should never be used when referring to any other brand of multiple-glazing construction.

We make these statements because the function of a trade mark is to unequivocally identify the manufacturer of a product...and to eliminate the possibility of confusion in the mind of the public concerning the producer of a specified product...and to assure that the customer gets what he orders.

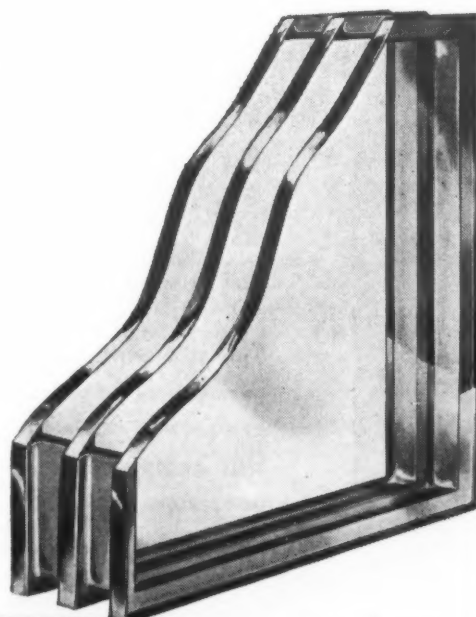
We are sure that refrigeration engineers and others who are familiar with the superiority and advantages of *Thermopane* will welcome these statements . . . will refrain from using our trade mark in referring to any construction or product not made by the Libbey-Owens-Ford Glass Company.

We believe that our readers will understand L-O-F's pride in *Thermopane* and our sincere desire to have *Thermopane* continue to enjoy its individuality.

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LIBBEY • OWENS • FORD
a Great Name in **GLASS**



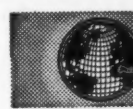
Cut-away view of *Thermopane*

LIBBEY • OWENS • FORD GLASS COMPANY...TOLEDO 3, OHIO

AN INTERNATIONAL INSTITUTION • SUBSCRIBERS ALL OVER THE WORLD



Trade Mark
registered
U. S. Patent
Office;
Est. 1926



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F. M. COCKRELL, *Founder*

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There's Good News Tonight!

THE tide has turned. That good old rugged individualist, the American farmer, helped turn it. But even more, the American people, in a mighty groundswell of emotion, finally staged a mass revolt against government controls.

It appears that the government planners know that they're licked—for now, anyway—and that the whole crazy superstructure of bureaucratic regulations is ready to collapse. So now, unless the unions go on another rampage, we can all go back to work and turn out the things this country needs.

Yes, there's good news tonight . . . for the dealer, the service man, the wholesaler, and the manufacturer. Pretty soon we ought to be doing business again at the old stand. Incidentally, the All-Industry Exposition in Cleveland this week now assumes new importance. Manufacturers can accept orders with some hope of filling them, and the thousands of customers who throng through the exhibits need not feel that they are looking at museum pieces.

The Masthead Comes to Life

THE happy advent of the Fourth All-Industry Exposition in Cleveland this week will be a reunion period for thousands of old friends and acquaintances who haven't seen one another for a long time. It also affords an opportunity for exhibitors to introduce new members of their organizations to the trade, and to re-introduce, proudly, their boys who served Uncle Sam during the war.

As far as the News is concerned, that opportunity will be a grand one, indeed. We're mighty proud of the staff we have assembled and re-assembled here to serve one of America's greatest and most useful industries, and it's a real pleasure to present many of them in our exhibit at the Cleveland show.

Atop this editorial column you see the "masthead." Nearly all the names listed there will be present in the flesh at the All-Industry Exhibition. All told, fourteen members of the AIR CONDITIONING & REFRIGERATION News staff will be in Cleveland to greet old friends and make new ones.

The Editorial Director and the Publisher will be there, of course, and so will Associate Editor Dale Mericle, who has become widely known around the industry in recent years for his studious inquiries into business problems.

Jack Sweet and George Hanning, our two star reporters, head the list of 15 returning G.I.'s who are now serving the industry through the News. They'll be on the lookout for news stories and material for articles, so don't hesitate to step up and tell them some of the interesting features of your operation.

In charge of the exhibit is Business Manager Ed Henderson, who was a radar officer aboard destroyers during the war, and who saw plenty of action in both oceans. Former navy men who come to the exhibition will enjoy trading anecdotes with him. Same goes for Al Schildhammer, who took rough rides on destroyer escorts. Al is an advertising representative and, of course, will be looking for business. So will Bob Price, who was an army sergeant in the China-Burma-India theater. To those who haven't met Price, we'd like to suggest that he's a barrel of fun on parties. Price is a Duke graduate, while Schildhammer will greet old friends from the University of Illinois.

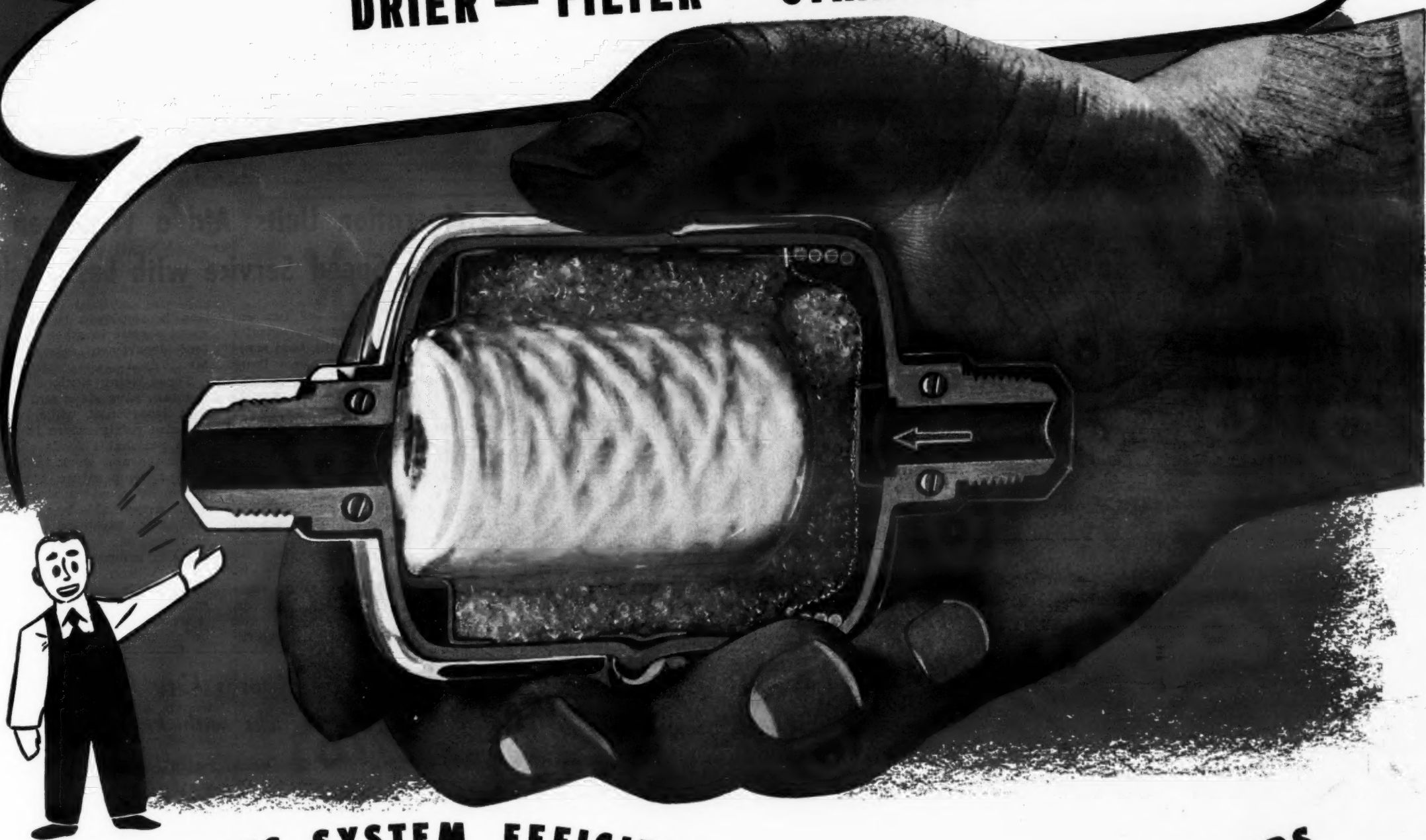
Assistant Advertising Manager Macil Stephens, who has a wide background of experience in business, will be there, as will Assistant Business Manager Elizabeth Smith, who, appropriately enough, came to us from Smith College.

Walter Schuler, Production Manager, will be pleased to discuss ink blending, engravings, and other reproduction problems with advertisers.

Selling subscriptions and taking orders for books in our booth will be three pin-up girls: Editorial Assistants Lorraine Major and Frances Weed, and Gertrude Livingstone from the Treasurer's department. We figure they should be able to sell lots of papers.

If advance predictions are borne out, many thousands of NEWS subscribers will be present in Cleveland this week. Between the fourteen of us, we hope to get acquainted personally with as many of you as possible, so that we may learn at first hand how to give you the kind of weekly newspaper you want and need.

TAKE DIRT AND MOISTURE OUT OF YOUR REFRIGERATION
SYSTEMS **FAST....** with a **TRAP-DRI**
DRIER — FILTER — STRAINER



● **IMPROVES SYSTEM EFFICIENCY... PREVENTS FREEZE-UPS**

The A-P TRAP-DRI will save you many costly callbacks... enabling you to avoid minor service troubles due to dirt, solder particles, scale, gummy deposits, acids and moisture.

These troublesome impurities are trapped and taken out of your system immediately, with a TRAP-DRI on the job. Offering *no appreciable pressure drop*, it provides a filter unit as effective as a 900-mesh strainer... *plus* a highly efficient charge of Silica Gel capable of absorbing up to 16 per cent of its weight in moisture — far more than other drying agents.

Put the A-P TRAP-DRI to work for your benefit on every job — for savings in service time, improved valve operation and cost-savings for your customers. Use it on new or present installations. Three sizes are stocked by leading refrigeration parts jobbers. See them—or write for latest bulletin No. TD-110.

**SEE THIS CUTAWAY SAMPLE OF THE
TRAP-DRI AT YOUR JOBBER**

It graphically illustrates the design and construction of TRAP-DRI with its high-efficiency honeycomb filter and high-capacity Silica Gel drier.

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COMPANY**

2450 NORTH DAVENPORT STREET, MILWAUKEE 10, WISCONSIN
Export Department — 12 East 40th Street, New York 16, N. Y.



DEPENDABLE *Refrigerant Valves*

STOCKED AND SOLD BY GOOD REFRIGERATION JOBBERS EVERYWHERE... RECOMMENDED AND INSTALLED BY LEADING REFRIGERATION SERVICE ENGINEERS

Keeping Developer, Fixer, Wash Bath Refrigerated Found Vital to Production of Good X-Ray Pictures

DETROIT — Refrigerated water which holds developer, fixer, and wash bath at an even 68° F. temperature has been discovered as vital in the production of good X-ray pictures.

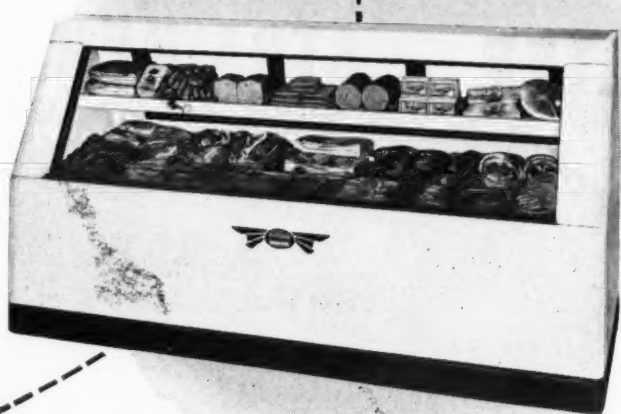
When temperature of the developer rises above that point, it was found, a chemical fog which greys the entire film occurs. In addition, the speed of development increases so that standard timing may result in

a film much too dense for clear reading.

In induction centers during the war, refrigerated water was circulated first into the wash tank, then through fixing and developing bath jackets. After that it was used as a precooling medium for all incoming raw water and then was finally discarded.

BENEFIT BY SHERER EXPERIENCE

94 years of continuous service to the food industry, including more than twenty years of specialization in refrigeration, have enabled SHERER to keep to the front in the manufacture of food display and storage refrigerators.



One member of a complete quality line . . . designed to be salable in volume at a profit.

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COMMERCIAL REFRIGERATORS

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VEGETAIRES • DAIRY CASES • REACH-IN

REFRIGERATORS • WALK-IN COOLING ROOMS •

MEAT & DELICATESSEN DISPLAY CASES •

Walgreen's Food Service Dept.



Above is part of the drug store's 12 ft. service bar affording refrigerated water, iced tea, and a refrigerated compartment for the storage of crushed ice and butter.

Refrigeration Units Aid a Walgreen Drug Store to Speed Service with Less Help

LINCOLN, Neb.—Use of two refrigerated service units strategically located on the floor of the food service department at the Walgreen Drug Co., 13th and "O" Sts., has enabled the firm to operate efficiently despite a shortage of fountain help and waitresses, according to H. R. Wilson, fountain manager.

The picture shows the larger of the two units, a 12-ft. bar, which provides refrigerated water, iced tea, and various other booth service essentials, in addition to a refrigerated compartment for storage of crushed ice and butter pats.

The units are located so that waitresses have to take a minimum number of steps in serving patrons, thereby reducing floor traffic and saving time and energy. Refrigeration

is employed to save time and speed service in other sections of the food department, also, according to Mr. Wilson.

Three "icing stations" on the soda fountain save steps and confusion in that department, while two commercial-size refrigerators in the kitchen keep perishable foods close at hand for cooks and work table personnel. A low temperature cabinet in the basement provides storage for fish, while a vegetable box with a blower unit in the basement helps to prevent spoilage of vegetables and keeps them in a more palatable condition.

Mr. Wilson estimates that his department is operating with 26 fewer employees than would be possible if it were not for efficient arrangement of mechanical refrigeration units.

Kold-Hold Equips Kansas City Dairy's Ice Cream Delivery Trucks with Hold-Over Plates

KANSAS CITY, Kan.—The Beatrice Creamery Co., producer of Meadow Gold Ice Cream, has recently put into service the first of their new Kold-Hold equipped ice cream delivery trucks.

The refrigeration equipment consists of six Kold-Hold hold-over plates. Three Model D-804 plates are mounted in the front compartment, two on the roof, and one set in vertically across the body between the two front side-doors. The rear compartment carries three Model D-801 hold-over plates, all mounted in the roof. Between the two compartments is an insulated Fiberglas partition.

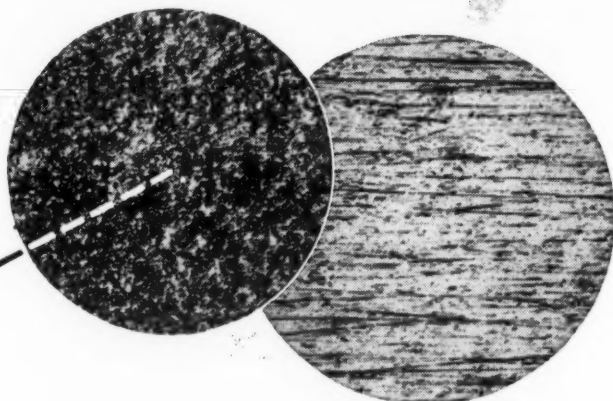
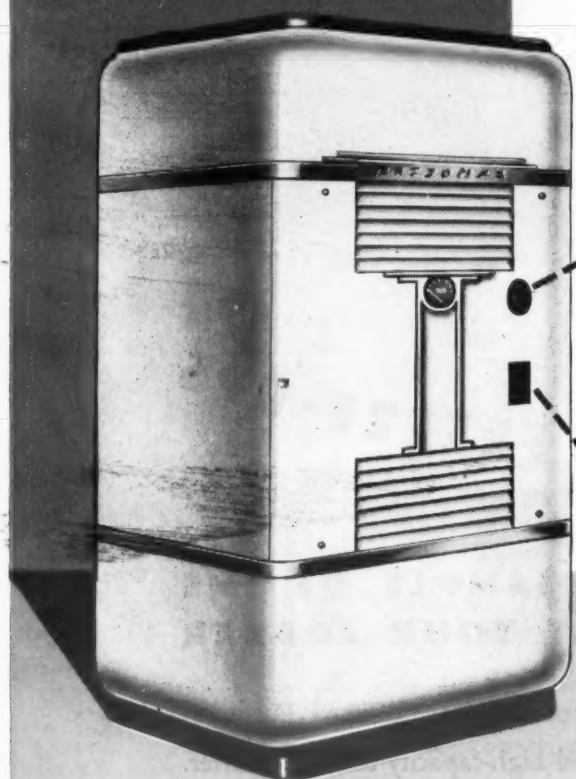
Plates in the rear compartment are installed with individual manually

operated cut-off valves, so that all three plates may be in service when this compartment is used for storing ice cream; or one, two, or all three plates cut off as desired when using the rear compartment for transportation of perishables at temperatures from plus 34° F. to 50° F.

The front compartment is for ice cream only with three hold-over plates providing transportation temperatures from 0° F. to 10° F.

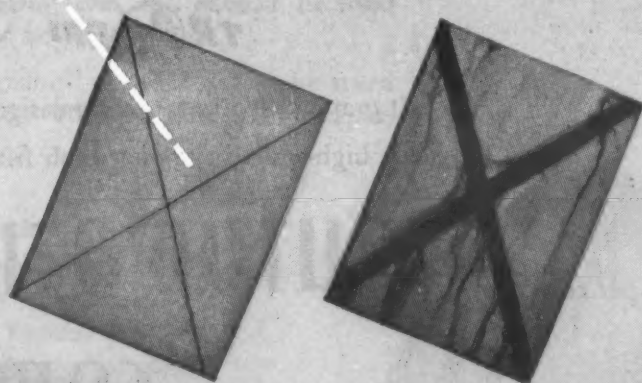
Built for the company's Great Bend, Kan. plant by the American Body & Equipment Co. (Lindsay Structure) of Kansas City, the truck is constructed with an aluminum body and aluminum lined inside. The truck weighs 6,000 lbs.

How Bonderizing guards against finish failures



Above photomicrographs are 100x enlargements. Left: Sheet steel, Bonderized. Crystalline coating is porous—enamel can penetrate, cling. Right: Plain sheet steel—glossy, smooth, no satisfactory hold for enamel.

Identical salt spray tests show effectiveness of Bonderizing. Left panel: typical enamel finish on Bonderized steel, intentionally scratched, is in good condition. Right panel: same finish on untreated steel, intentionally scratched, is well on way to complete failure.



Bonderizing ANCHORS PAINT TIGHTLY TO METAL

Leading manufacturers of refrigerators, washing machines and air conditioning units Bonderize to protect and preserve fine finishes. Bonderizing resists corrosion in humid operating conditions.

Bonderizing forms a crystalline phosphate coating which is nonmetallic,

though part of the metal itself. This permits tighter initial adherence of paint, for longer-lasting fine appearance and corrosion resistance in use.

The extra value of nationally-advertised Bonderizing can be a powerful sales influence!

PARKER RUST PROOF COMPANY, 2170 East Milwaukee Avenue, Detroit 11, Michigan

PARKER PRODUCTS CONQUER RUST



MARVEL

39 inches high, 30 inches wide,
6, 8, or 10 feet long

Beautiful stainless steel and polished aluminum outside with polished aluminum interior. Heavy duty fin-type coils, designed to give fast cooling and less frosting. Rugged construction, first quality materials throughout. Stainless steel lids slide away or lift out. 8-inch utility shelf. Removable dividers inside. Toe space under edges.

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WANTED

Write, wire or phone
today for information
on franchise.

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Industries

P. O. BOX 272-AC DEMOPOLIS, ALA.

'What It Takes' To Be a Competent Air Conditioning Contractor

ST. PAUL—The air conditioning contractor who desires to make quality installations must be backed by full knowledge of available equipment plus complete know-how in design and installation techniques, believes A. C. Buensod of Buensod-Stagey, Inc., New York City.

In a paper prepared for the air conditioning symposium presented at the recent spring meeting of the American Society of Refrigerating Engineers here, Mr. Buensod discussed the "Part to be Played by the Air Conditioning Contractor in Assuring Quality Installations."

The contractor must have, first, "the design and installation technique that only experience teaches, combined with competent field men who by long experience have learned the artistry of sheet metal construction, piping systems including the different refrigerant piping technique, and the thorough operating knowledge of all types of refrigeration," he emphasized.

'Assimilate Proven Data'

Secondly, the contractor must possess "the thorough assimilation of the proven data that has now been evolved covering air conditioning, especially for comfort. This assumes that the psychrometric chart has been thoroughly studied and assimilated so that its use is almost second nature."

He also needs the "know how" comprising the many years of experience and brains of the older men and the younger men to make air conditioning systems function properly."

As his fourth suggestion, Mr. Buensod advises that "the younger men entering the business, whether they be engineers or mechanics, should provide themselves with the necessary proven data which is available from many sources, and if financially able take a course from an authoritative school in the complete engineering fundamentals, design application, and installation practices now current."

"Without exception you will find the many specialists in the air conditioning industry to be quite willing and quite enthusiastic in helping those that wish to enter this industry in quickly obtaining the necessary practical and fundamental experience," says Mr. Buensod.

He pointed out, however, that he "does not subscribe to the theory that a six weeks' course in air conditioning will make anyone a specialist. Rather we would have the younger men understand that it will take years and not weeks to really become competent and useful."

Must Keep Up to Date

Contrasting the present state of the art with the early days, Mr. Buensod said, "The air conditioning contractor of today really has to sit up nights studying the various new types of air handling equipment, air distribution outlets, refrigeration systems, automatic control systems, and various other gadgets that make an air conditioning system function."

"The air conditioning contractor obviously has the contract for an installation and is financially responsible and, therefore must be thoroughly conversant with all of the engineering and installation technique to be able to coordinate effectively all the parts of a design so that, when it is completed, it renders the results for which it was planned. These duties are all in addition to the contractor's ordinary responsibility of handling materials and labor, and gambling on what he can do to meet stated costs," he said.

How It Differs From A Heating Job

"Air conditioning installations are not the simple contracting proposition that a boiler and steam piping project usually turns out to be," pointed out Mr. Buensod. "If the boiler is the right size, the piping is sized correctly, and the radiators are placed properly with the right amount of surface, many mistakes can take place, but you can still heat. This is not true of air conditioning, as a consensus of opinion among experienced air conditioning contractors shows that the cost of adjustments, service, mistakes in design, and possible replacements averages from 2% to 3% of the selling price."

If this reserve for service and adjustment is not allowed for, the contractor simply has to dig it out of his pocket, because the best technique now known in the industry will not eliminate this expense."

Relations With Consultant

The relationship between the air conditioning contractor and the consulting engineer was also discussed by Mr. Buensod, who declared that "on the larger projects especially, it would be inadvisable on the part of the client to try to eliminate the highly valuable work contributed by a consulting engineer."

Many air conditioning contractors, he emphasized, are qualified to perform the duties of the consulting air conditioning engineer, but the client generally expects this service as part of the installation contract and is not willing to pay the contractor any-

thing extra for it.

"It is also quite true that there are some types of projects, especially industrial processes, in which many of the air conditioning contractors have specialized for many years and in which they would be more competent to carry out the owner's requirements, barring always the fact that if there is a new building of any size, the owner must have an architect and should have a consulting engineer."

"On the smaller types of commercial air conditioning projects, they are really too small for a consultant to be remunerated properly and therefore these types of projects have been handled by highly specialized selling and contracting air conditioning organizations, usually dealers or distributors of large manufacturers of air conditioning equipment."

There are three general methods of coordinating the work of the air conditioning consulting engineer and the contractor, pointed out Mr. Buensod. In the first of these, the contractor is given detailed design drawings and specifications to be followed rigidly, but this type of installation will carry only the usual warranties on equipment and workmanship with no guarantee as to satisfactory performance.

In the second setup the contractor is likewise supplied with rigid plans and specifications, but he is also required to meet performance guarantees. Because the contractor alone is responsible for achieving satisfactory performance of the air conditioning installation, he must give much careful thought and study to the plans.

Where a Performance Guarantee Is Required

"Where such performance guarantees are required, the air conditioning contractor should reserve the right to make such changes in the capacity of equipment, or in the air distribution, or other pertinent details which in his opinion are

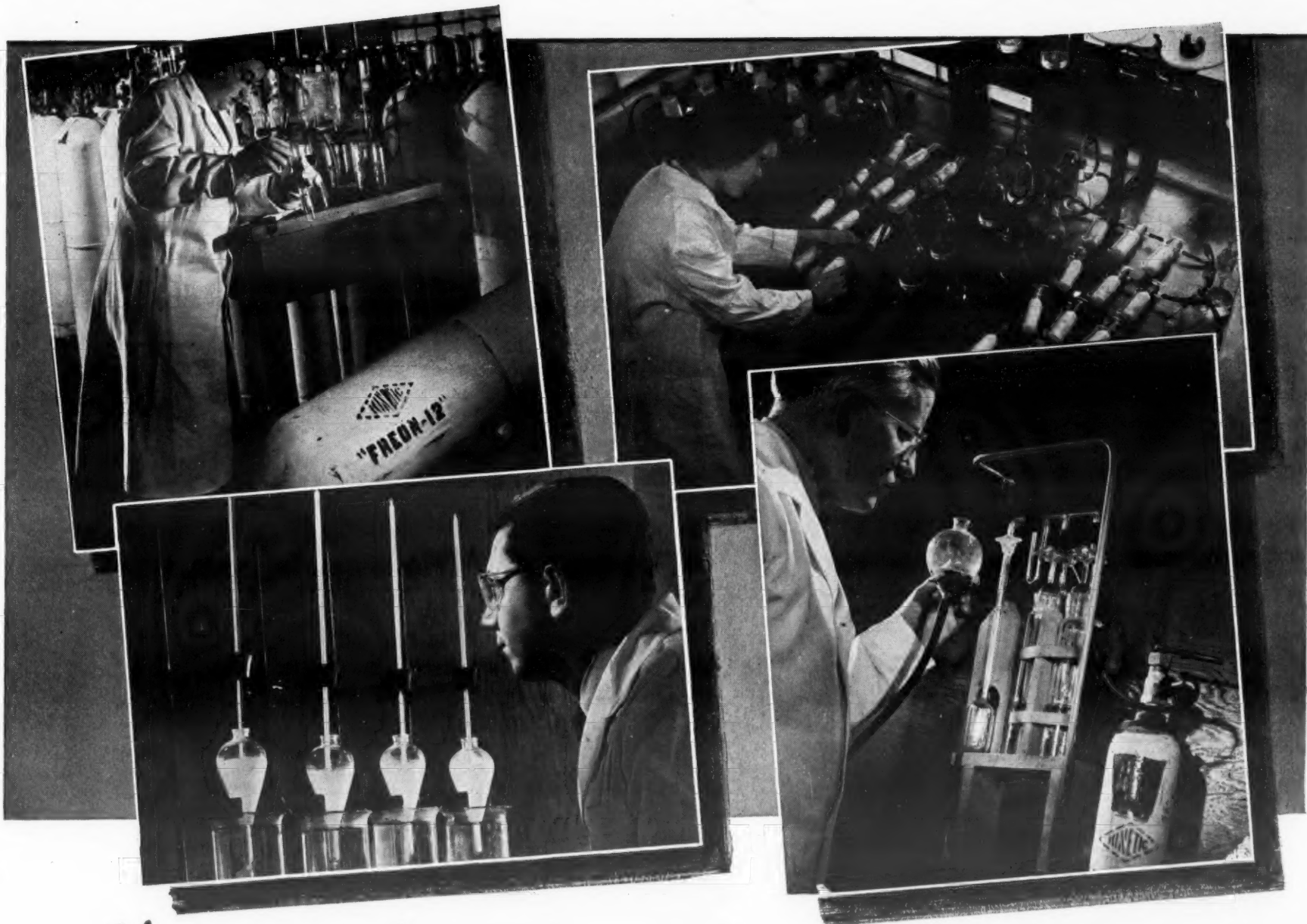
required in order to meet the performance guarantees," suggests Mr. Buensod. "This is a method that has in the past proved to be acceptable in assuring quality air conditioning installations."

"There is another method that has been pursued and found highly successful in the results obtained, which combines the efforts of the air conditioning consultant and the air conditioning contractor," he continued.

"The consulting engineer allows freedom of design and the selection of equipment but definitely performs his duties by specifying, if he so desires, minimum capacities of apparatus, and outlines the space conditions governing both the installation and the apparatus. The consultant also coordinates all of the incidental work such as the structural design for the housing, the electrical power system, the steam, and return heating connection, and the plumbing and drain connections."

"Freedom of design with the consultant's approval and the selection of proper equipment to do the work is allowed the air conditioning contractor, and he is then responsible for the performance guarantees."

You've read about these "FREON" tests...



Now see them in action

AT THE ALL-INDUSTRY REFRIGERATING AND AIR CONDITIONING EXPOSITION

See for yourself some of the laboratory tests that control the manufacture of "Freon" safe refrigerants and insure their purity, dryness, and uniform quality. Watch demonstrations of their non-flammable, non-irritating, and non-staining properties.

You've read about many of these tests in recent "Freon" advertisements. Now watch physicists conduct them in the "Freon" Booth (No. 316) at the All-Industry Exposition in Cleveland, October 29—November 1.

You'll see "Freon" boiling in a bulb at sub-zero temperatures. You'll learn how chemical and physical analyses are conducted throughout the intricate process of manufacturing "Freon"... how they insure the amazing, almost total dryness of these superior refrigerants... less than 25 parts of moisture in a million parts of "Freon".

Learn why purity and dryness of "Freon" refrigerants are important factors in air conditioning and refrigerating systems. Let us explain how "Freon"

helps reduce maintenance of the system... helps promote trouble-free operation of equipment and helps prolong the life of the entire installation. Technical representatives will be on hand to answer your questions about "Freon". Get the facts. Make it a point to stop at the "Freon" Booth. Kinetic Chemicals, Inc., Tenth and Market Streets, Wilmington 98, Delaware.



Lower Insurance Rates, Improved Codes Sought by Northern California Contractors

SAN FRANCISCO—Speaking before some 200 members of the Refrigeration Contractors Association of Northern California here recently, Z. E. Jones, secretary-manager, reflected on the Association's growth during its first year into "the largest refrigeration contractors' association in the United States in point of numbers, territory, and financial condition."

His report on the year's activities, given on the occasion of the group's first annual dinner, cited several advances made by the association:

1. Inauguration of a master labor agreement for the Bay area.
2. Progress toward separate recognition for refrigeration mechanics.
3. Establishment of a large-scale apprentice training program.
4. Institution of group advertising.
5. Cooperation in the revision of codes and ordinances involving conditional sales of equipment by dairy companies.
6. Adjustment of compensation insurance ratings.

These advances, Mr. Jones stated, are merely the "spade work." "It can hardly be said that any of . . . [them] . . . represent finished tasks, but rather, 'foundation stones' upon which we may expect to erect the structure of our organization in the years to come."

Emphasizing that the organization has already expanded to include units in Sacramento, San Joaquin, and Stanislaus counties, he added: "With

more and closer cooperation from the rank and file perhaps we can give a better account of our stewardship next year."

Mr. Jones expressed hope that in time the association would organize several other local units within a 75-mile radius of here.

The Refrigeration Contractors Association of Northern California, originally came about as a coalition of an East Bay refrigeration dealers' group and San Francisco contracting and servicing firms. These two organizations joined forces, and with cooperation of the Los Angeles Refrigeration Contractors Association, incorporated a group of their own on July 27, 1945.

Negotiates With Unions

By November, 1945, the group had grown so rapidly, it became necessary for Nat Silverstone, one of the directors to raise \$2,200 in contributions from members in order to open a new headquarters office.

During that month in an effort to gain uniform wage scales and working conditions among contractors in the Bay District, the San Francisco group entered into negotiations with Local 509 (San Francisco) and Local 342 (Oakland). Within two months an agreement satisfactory to both the contractors group and the labor unions was concluded. This master labor agreement, observers said, marked another step forward in the

North California Contractors' campaign to win separate recognition of the refrigeration industry by organized labor groups.

A resolution requesting complete elimination of OPA ceilings on billing charges for labor was adopted by the group early this year and presented at the National Board meeting in Cleveland last June. It received the approval of the National Board and, after being amended to include all material and equipment, the resolution was passed on to the OPA in Washington, D. C.

Following the establishment of the master labor agreement, unions and employers throughout the Bay region set up joint apprentice training committees to carry out the five-year training of refrigeration apprentices required by law, the report continued. Both evening and day schools were set in operation, the former for working apprentices and the latter for pre-apprentice training.

Mr. Jones termed the inauguration of such schools a "real service," since they indicated that industry was "awakening to the fact that full refrigeration training is absolutely necessary if we are to have competent refrigeration specialists in the years to come."

Illustrating again the need for "separate recognition" even in the field of training, he added: "Steam-fitter locals in some localities prefer to have us accept their apprentice training standards established for several years, but they are ill-adapted to the welfare of refrigeration skills if followed closely."

Want Stiffer Exams

Recently the San Francisco group, in conjunction with the Los Angeles contractors, took steps to raise the requirements for licensing of contractors under California law. Both groups appeared before the License Board and discussed the drafting of more rigid questions for the State examination. As a result they were delegated by the Board to draw up a set of suggested exam questions and submit them for study. This matter will be undertaken within the near future, Mr. Jones pointed out.

In order to give the various divisions of the San Francisco contractors a sense of unity, and "to tie us together as a group of responsible contractors and service firms" a trademark plan of a composite advertisement has been prepared by the parent organization, Mr. Jones stated.

Scheduled to appear in Bay District directories this fall, the advertisement will feature the Association's name, emblem, and code of ethics. Under this will be listed the names, addresses, and phone numbers of all approving members engaged in sales, installation, and service work.

A similar form of group advertising was undertaken by the San Francisco contractors last February when they had 26,000 "Code of Ethics" business cards printed for distribution among members of the organization. But aside from direct advertising, one of the primary aims of these cards is, as Mr. Jones put it, "to correct some of the malpractices in our own 'family.'"

Complains Against Dairies

Last month the group took steps to eliminate what it considered to be one of the more outstanding "malpractices" by filing a formal complaint against California dairy firms which were permitted to make conditional sales of refrigeration equipment under the State Agricultural Code.

(As reported exclusively in the NEWS Sept. 23, the Federal Trade Commission's San Francisco office is currently awaiting instructions on the petition from Washington, D. C.)

Concerning group insurance ratings for members, the San Francisco organization first undertook group insurance last fall under the California State Compensation Fund, the report continued.

Briefly, the plan outlined by the State Fund consisted first of grouping premiums and losses of participants, and then, after deducting certain overhead costs, the excess of premiums over losses was to be split among those participating in the form of an annual dividend.

Last October the San Francisco association again joined forces with the unit from Los Angeles—this time to seek a lower insurance rate for

members. A petition for a "refrigeration" rate classification, based on "the low accident frequency and severity record of the industry," was submitted by the two groups and is at present under consideration by the California Inspection Rating Bureau, the report continued.

Said Mr. Jones: "Heretofore, due to lack of our own classification, much of our work has taken the 'millwright' rate, which seems out of proportion to the risks involved. At our joint request a study was undertaken by the Rating Bureau, resulting in a schedule of reduced rates and a 'refrigeration' classification being recommended by the Bureau to the Insurance Commissioner. . . .

"If and when favorable action is taken, it will doubtless mean substantial savings in compensation insurance costs to refrigeration contractors all over the State."

In an effort to stimulate interest among contractors in solving their own problems the San Francisco group held a series of separate conferences last fall, each one concerned with the resolution of a particular difficulty. One of the meetings took up the question of revising the refrigeration code of Berkeley.

Recommends Code Changes

After continued discussion, several recommendations for modification of Berkeley's code were made by the conference committee. These proposed changes are now being studied by the Board of Directors. It was during this series of conferences that suggestions were made for the adjustment of group insurance rates.

Continuing its drive to expand membership, the San Francisco group

early in the year prepared a special bulletin outlining the advantages of the organization. By March the Membership committee had done its work so effectively that meetings called in Sacramento, Stockton, and Modesto resulted in three additional units being established. Under the Unit plan the local group has self-autonomy, operating under an Executive committee the chairman of which is given a place on the parent group's Board of Directors. Accordingly last spring in order to allow representation for the new units, the size of the Board was increased from eight to 11.

Among other measures still being promoted by the San Francisco group is a petition to the city managers of Oakland, Berkeley, Alameda, Hayward, and San Leandro requesting a change in the minimum specifications for walk-in boxes to a standard 8 ft. in height. Several of these ordinances, the report disclosed, now provide for either a 9 ft. or 10 ft. height. In July representatives of the San Francisco contractors appeared before the Industrial Accident Commission where they discussed proposed safety orders affecting industrial refrigeration.

Fred Puder, Inc. Will Expand In Evansville

EVANSVILLE, Ind.—Fred Puder, Inc., will expand its facilities here, it was announced by William H. Newman, manager.

The company, which has filed articles of incorporation changing its name from the Fred Puder Co. to Fred Puder, Inc., will build a \$40,000 one-story structure on the corner lot measuring 100 by 150 feet.

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Means Something!

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Whether your requirements call for 1/3 to 25 hp. water-cooled units, or 1/4 to 3 hp. air-cooled, there is a Brunner Condensing Unit designed to meet them. They are described and illustrated in our Refrigerating Equipment Catalog. Write for a free copy.



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Utilizing a MODULATED air-flow, these quiet, compact M&E Units provide uniform spot temperatures throughout the cabinet and maintain a high relative humidity thus avoiding excessive dehydration. Floors remain dry, safe, sanitary. Both wall and ceiling models have a high-gloss, rust resisting surface. Completely automatic. Heat exchanger in all models. Rounded front of wall model gives maximum air distribution. Complete data sheets on request.

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'Diaper' Service 'Laundries' Air Filters For Owners of Air Conditioning Systems

Special Machine Can Clean 1,000 In 8 Hours

By Albert Danenhirsh

What is believed to be the only mechanical air filter cleaning laundry in the United States has been in commercial operation in Philadelphia, Pa. since September, 1945. The laundry cleans filters of air conditioning and ventilating systems entirely by machinery and furnishes a kind of "diaper" service to clients who desire regular filter cleaning.

The machine is the invention of Frank D. Crew, a graduate civil engineer and president of the F. D. Crew Co., Inc. of Philadelphia, sales agents for manufacturers of air handling equipment. The company operates Air Filter Laundry, as this filter cleaning service is called.

Pick-up and Delivery Service Provided

The "diaper" service of Air Filter Laundry provides business and industrial firms with a completely automatic filter cleaning service—filters of local clients are picked up and delivered at stated intervals and free replacements are furnished while filters are being cleaned and processed. This service is also used by firms outside the city who ship their filters to the laundry.

The establishment of Air Filter Laundry is an outcome of the war. During the war, the F. D. Crew Co., which was furnishing the Navy with shipboard air handling equipment, was requested to devise some mechanical means for cleaning filters for a large Navy project on the Mojave Desert in California. The heavy dust kept clogging the filters in the large air conditioning system

at the project.

A machine was designed by Mr. Crew and installed at the site. It had a capacity of cleaning more than 1,000 filters in eight hours and made possible the efficient maintenance of all the filters there.

Subsequently, another machine was built and this model was the beginning of Air Filter Laundry. The commercial success of the machine resulted in the inventor's receiving a number of orders for similar models. A patent is now pending on the device.

Filters Formerly Were Cleaned by Hand

Prior to the invention of this machine, permanent type filters were generally cleaned by hand. When hand cleaned, the filters are first dipped into a hot caustic solution to remove the dirt. They are then rinsed with hot water to wash off the chemical solution. Afterwards they are stacked up in a room for 24 hours to dry. Before put back, they are sprayed with an adhesive oil.

Filter cleaning is usually the responsibility of the company maintenance engineer who must attend to this work on days when the building is closed and the air circulation systems can be shut off.

An alternative to the permanent type filter is the "throw-away" filter which, when used commercially, eliminates the expense and work of cleaning. However, these temporary filters, which are usually made of fiber glass, must be discarded when they become dirt-clogged.

The mechanical method of filter cleaning used by Air Filter Laundry is as follows:

Various Processes Are Employed In Cleaning

An overhead conveyor system carries the filters through the entire cleaning operation. At the ground floor, the filters are hooked on to regularly spaced tongs which lift them upstairs. Here, the filters pass over a row of shakers which knock off the loose dirt.

They then pass through two 500 gallon tanks containing a special caustic solution for removing the dirt and grease. After this treatment the filters are run through two clean hot water tanks. They then pass through a hot water spray chamber which removes any remaining caustic.

At this point, the filters are run through the drying chamber. Here twin blowers, one at each end, force hot air into the chamber, the air circulating back and forth by means of baffles (slanting sheet metal pieces on both sides of the chamber). The filters finally pass into an automatically controlled oil spray cham-

Conveyor System Is Employed In 'Laundry'



With air filters being carried through the entire plant on an overhead conveyor system, they pass through these tanks containing special caustic solution for removal of dirt and grease, thence through clean, hot water tanks, and finally through a drying chamber.

ber where they are covered with the proper thickness of oil. The filters pass down to the ground floor again where they are stacked to await delivery.

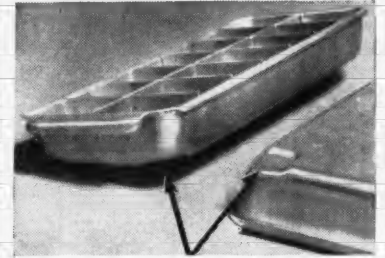
The entire cleaning process requires 19 minutes, with the machine cleaning one filter every 30 seconds or close to 1,000 every eight hours.

The average charge for cleaning filters by the company, including

pick-up and delivery, is 75 cents each. Regular filter cleaning service averages once a week to once a month, depending on the type and location of the business.

Some of the well-known local firms who use Air Filter Laundry are: Gimbel Brothers, Campbell Soup Co., Philco Corp., Esterbrook Pen Co., Nevins-Sun Ray Stores and Publiker Industries.

ICE CUBE TRAYS



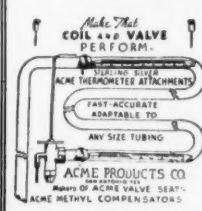
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FOR INSTANT RELEASE
FROM FROZEN PLATE
4 1/8" x 11 1/8" x 1 3/8" (14 cubes)
also
4 3/8" x 6 3/4" x 1 1/2" (9 cubes)

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Dallas, Ft. Worth.

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Corpus Christi.

K.M. Supply Co.
Tulsa.

Invented New Process



FRANK D. CREW

He is the inventor of the air filter
laundry cleaning machine.

TYPHOON

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All-purpose, handsomely designed, smooth functioning air conditioning units with all copper condenser and liberally designed coils—removable outlet box for use with duct system—removable panel in back of outlet box for additional grills where front and back air distribution is desired in center of room . . . two way adjustable deflecting grill . . . knock-out for fresh air connection . . . removable one-piece panel in front for easy accessibility. The cabinets are made of furniture steel . . . crackle finish. Also available with one or two row heating coils.

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McCORD
REFRIGERATION and
AIR CONDITIONING
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MOST MANUFACTURERS DO!

DOMESTIC
CONDENSERS

Air Cooled • Static

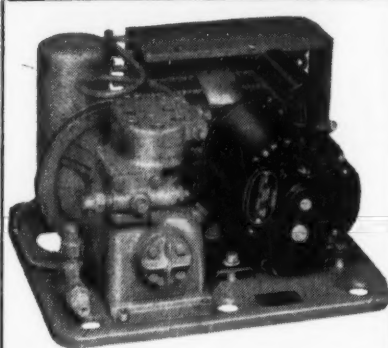
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Air Cooled • Water Cooled

McCord developed the flat tube design condenser for more efficient condenser service. This McCord design reduces the cross sectional area providing more wetted surface and a corresponding increase in condensing results. It is supplied to leading manufacturers for equipment. McCord also manufactures many round tube type condensers for those manufacturers who prefer this type of construction.

McCORD CORPORATION DETROIT 11, MICHIGAN

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EVAPORATIVE
3 to 50 T. R.

*Unequaled
For Outdoor Installation*

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Hunter's Game Rides Home In Refrigerated Trailer Instead of Across the Car's Hood

Three Section Trailer Provides Conveniences of Home

COLORADO SPRINGS, Colo.—It'll probably be an awful blow to their pride, but it looks as though deer hunters of the future will show the home folks a trailer freezer full of quick-frozen venison instead of a three-point buck slung across the car fender.

At least they will if the deluxe hunting trailer designed and owned by Cady L. Daniels, of this town, ever catches the public fancy. Among other things, the three-section trailer permits him to quick freeze his game right in the field.

In the rear section, Mr. Daniels installed a large cold storage compartment capable of holding four dressed and cut-up deer. It is equipped with six cold plates which make possible temperatures as low as 30° below zero.

The center compartment houses a $\frac{1}{2}$ -hp. Frigidaire compressor powered by a 3,000-watt Onan W3S electric generating plant. Controlled by remote push-buttons or an automatic panel, the generating plant also furnishes heat and power for electric lights and cooking.

A large front compartment provides storage space for hunting equipment, canned goods, cooking utensils, tables, and chairs.

The following description will give you an idea of how "rough" it would be to accompany Mr. Daniels and his trailer into the field:

"A specially-designed wall tent, equipped with wiring for electric lights and a heating vent, is set up roadside to the trailer. On cold mornings, Mr. Daniels starts his unit by remote push-button controls without getting up from his cot.

"The pusher-type fan forces warm fresh air through the radiator of the electric plant, down a canvas vent pipe, and into the wall tent. In 7 to 8 minutes, the tent is comfortably warm."

On a hunting trip to South Dakota last fall, Mr. Daniels and a group of friends stored their "bag" of pheasants in the freezer. After several days of hunting, they returned home with their quick-frozen birds in perfect condition.

James Perry New Head Of Detroit Contractors

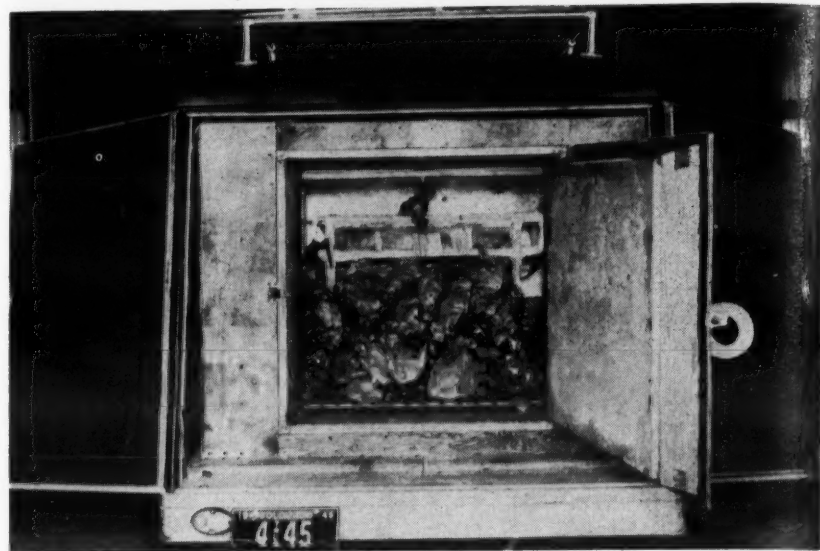
DETROIT — James E. Perry of James E. Perry Refrigeration, Ferndale, was elected president of the Refrigeration Contractors Association of Detroit at a board of directors' meeting recently. The Detroit group is affiliated with the N.A.R.C.

Benjamin G. Hyatt, of Copeland Authorized Refrigeration Service was re-elected vice president. Raymond M. Shock continues as executive secretary.

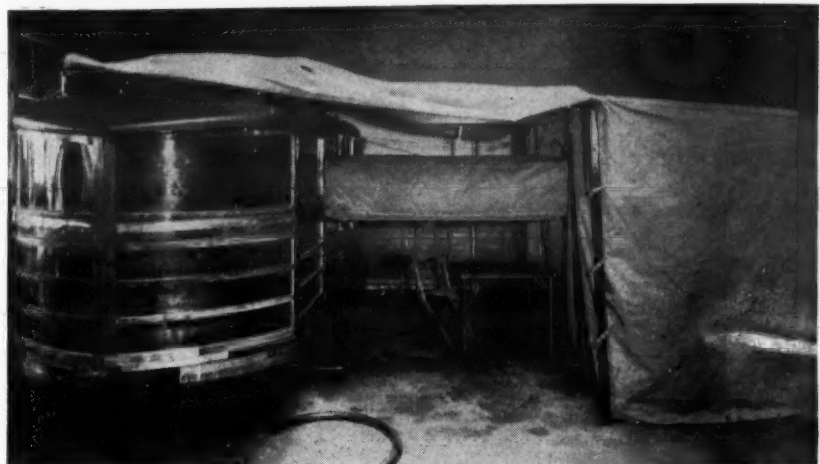
Hunt In Style—Bring Home Game In Perfect Condition



Cady L. Daniels stands beside his deluxe hunting trailer, which despite the fact that it houses a unit providing everything from refrigerated storage to power for lighting, heating, and cooling, is comparatively small.



The storage compartment for the game is fitted with plate-type evaporators and refrigeration is furnished by a $\frac{1}{2}$ -hp. Frigidaire condensing unit powered by a 3,000-watt Onan electric generating plant.



A specially built tent has extensions for electric lights and cooling equipment. Canvas vent conducts warm air from the radiator of the Onan plant into the tent.

A Brand New PRINCIPLE...



Not just
another
Refrigeration
Plate

THE HUBBELL-YODER SYSTEM of COMPLETE SURFACE FREEZING

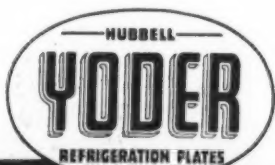
HURRY! HURRY!! HURRY!!!
SEE THE LATEST DEVELOPMENT
IN PLATE REFRIGERATION AT
BOOTH 1012
AT THE REFRIGERATION EXPO
IN CLEVELAND!!



● Specifically, the distinctive—and exclusive—feature of Hubbell-Yoder Plates is the fact that the refrigerant circulates in a broad web. It is not confined to narrow channels. Thus the entire plate area—every single square inch of it—is actual prime pickup surface. For fast temperature pull-down its performance is really sensational.

If you make, sell or use low temperature equipment such as freezer cabinets, locker plant plate banks, sharp freeze shelf stacks, etc., it will certainly pay you to get complete information about Hubbell-Yoder Plates.

Write, wire or phone.



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All Right...
where does
the Moisture
go?

THAWZONE DATA

"It sure worked on that job," says Mr. Service Engineer. "But where does the moisture go when THAWZONE acts on it?"

"We'll try to explain," we say. "But please bear with us if our explanation sounds complicated."

Water has the chemical formula H_2O . Chemically, however, it generally behaves as if it were made up of two parts: an H^+ (positive hydrogen ion) and an OH^- (negative hydroxyl ion). There are various compounds that interact with water to split it up this way. Most of them are unsuited to a refrigeration system.

THAWZONE, however, is a solution of compounds which are suitable. All they do is to "grab" on to the H^+ with one part and the OH^- with another. The resulting new compounds are complex, but oil-soluble and inert. As a matter of fact, to separate these materials and identify them is almost impossible. This is another indication of their inertness and similarity to the oil normally present in refrigerating systems.

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The PIONEER FLUID DEHYDRANT

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195 VERONA AVE., NEWARK 4, N. J.



Kroger - Frigidaire Tests Show Unaged Beef Holds Flavor Longer During Frozen Storage

DAYTON, Ohio—Contrary to popular belief, beef aged before freezing tends to lose its flavor faster during frozen storage than unaged beef.

This innovation was introduced to members of the American Chemical Society during its 110th meeting last month in Chicago, after findings of a series of meat-aging experiments were incorporated and presented in a paper entitled "A Study of Beef Aging in Relation to Freezing," by the Kroger Food Foundation and Frigidaire Division of General Motors.

Results of tests indicate that the flavor of aged beef deteriorates more rapidly while in frozen storage than that of unaged beef," the paper summarized. "This is also true of beef aged under ultra-violet rays and beef aged for 240 hours at customary aging temperatures. All beef in this study, regardless of aging treatment, lost flavor after six months of frozen storage."

A series of meat-aging experiments was instituted more than a year ago in the Kroger laboratories in Cincinnati by a little band of frozen food experts—Walter Reiman and Robert Hockman, senior Technologists for the Foundation and D. C. McCoy and G. A. Hayner, Frigidaire frozen food technicians. More than 300 sample cuts, including 24 sides of U. S. Grade "A" or "Good" beef were tested over storage periods ranging from three, six, nine, and 12 months. The formal presentation of the report was made by Mr. Reiman.

A second, although equally important finding held that the methods employed in freezing beef had no significance in the development of "off flavors" or degree of tenderness.

FREEZING METHOD NO FACTOR

"The method of freezing, whether by direct contact in the home freezer or by forced air of the commercial 'blast' type, is definitely not a factor contributing to flavor, taste, or tenderness of meat in frozen storage," the paper declared, "Such changes occur in frozen storage."

It was explained that the development of "off flavors" is due principally to oxidation of fatty tissues and the surface of the beef, itself. Tests show that little oxidation occurs during an induction period of about six months while meat is in frozen storage.

"After that reaction is speeded up and between six and nine months oxidation reaches its maximum rate," the report disclosed. "There is a general let up in the rate of oxidation during the period of from nine to 12 months."

Proper wrapping and packaging of meat prior to freezing was emphasized in the joint study. Tests showed that transmission losses for the majority of samples amounted to less than one hundredth of a pound when meat was encased in moisture-vapor-proof cellophane and properly

secured with special low temperature tapes.

Exceptions to the rule were noted when wrapping was broken by handling. Another observation of importance centered about the fact that even though wrapping material may constitute an excellent barrier against moisture and vapor, it must closely adhere to the meat during freezing and storing. Otherwise surface dehydration will take place with ice crystals forming between the meat surface and the wrapper.

In reality, changes in tenderness in relation to storage time were not as significant or as clear as flavor variations. With but a few exceptions, the tenderness level of all beef after six months of storage was below that of three months duration. Between six months and the completion of testing, changes became more variable. The trend for roasts was decidedly downward while steaks seem to become more tender.

TASTE, TENDERNES UNCHANGED

"Aging for 10 days in the presence of ultra-violet rays result in no variations in either taste or tenderness of frozen beef," the paper commented.

The report attested that dehydration, drip and cooking losses, along with total food yield, was not affected by methods of aging or freezing.

"Any variation between steaks and roasts is probably due to the cooking method employed," the paper pointed out.

No effort was spared in the series of experiments. Twenty-four sides of beef were reduced to retail cuts during the testing period and were aged in three different ways. A number of cuts from one side were chilled to 34-36° F. for 30 to 36 hours; reduced to retail cuts at 48 hours, then frozen. The matching side was chilled to 68° F. for 14 to 16 hours; held at 68° F. with 85 to 90% relative humidity for 44 hours under ultra-violet rays measuring 2537 Angstrom Units, then chilled to 34-36° F. and cut into samples.

Other sides of beef were chilled to 34-36° F. for 30 to 36 hours, reduced to sample cuts at 48 hours and frozen. The matching sides were aged for 10 days at 36-38° F., cut into samples and frozen.

TEST METHODS & EQUIPMENT

Still another variation was studied. A side was aged for 10 days at 36-38° F. in an aging room, cut and frozen. The matching side was aged for the same length of time at 36-

38° F. under ultra-violet rays, then reduced to retail sizes and frozen.

All samples were wrapped in moisture-vapor-proof cellophane, which was designed for frozen food packaging. The wrappings were secured with a low-temperature acetate fiber tape and over-wrapped with stockinettes.

Two methods of freezing were employed for the experiments.

(1) A Frigidaire ice cream cabinet was used as a home freezer at a storage temperature of zero with a refrigerant temperature of 15 below zero.

(2) A blast-freezer with air temperature fixed at 20-25° below zero and refrigerant temperature at 25-30 below zero was used. Air velocity of this unit developed 1,000 feet per minute.

Samples frozen in the home freezer were preserved in the cabinet at 0° F. These processed by the blast-freezer were stored in commercial cold storage with room temperature ranging from 0 to -5° F.

Samples were weighed before and after wrapping; after freezing, and following a defrosting period of 24 hours, and again after cooking.

Be Sure You See the New Double-Duty Quillen HOME-FREEZ



Here, in one gleaming package, is the home freezer you'll want to sell... the freezer your customers will want to own! It's the new, double-duty Quillen Home-Freez... with two convenient compartments for freezing, three for storage... ample capacity for either farm or city homes, as well as food markets, hotels, restaurants, institutions and schools. What's more, you can be sure the Home-Freez will provide a lifetime of economical, dependable, trouble-free service because it's soundly designed and ruggedly built by Quillen—one of the few manufacturers who had home freezers in use and in production on a commercial basis before the war. All this, plus many exclusive features, add up to make the Quillen Home-Freez a stand-out in sales... a unit that stays sold with minimum post-sale service!

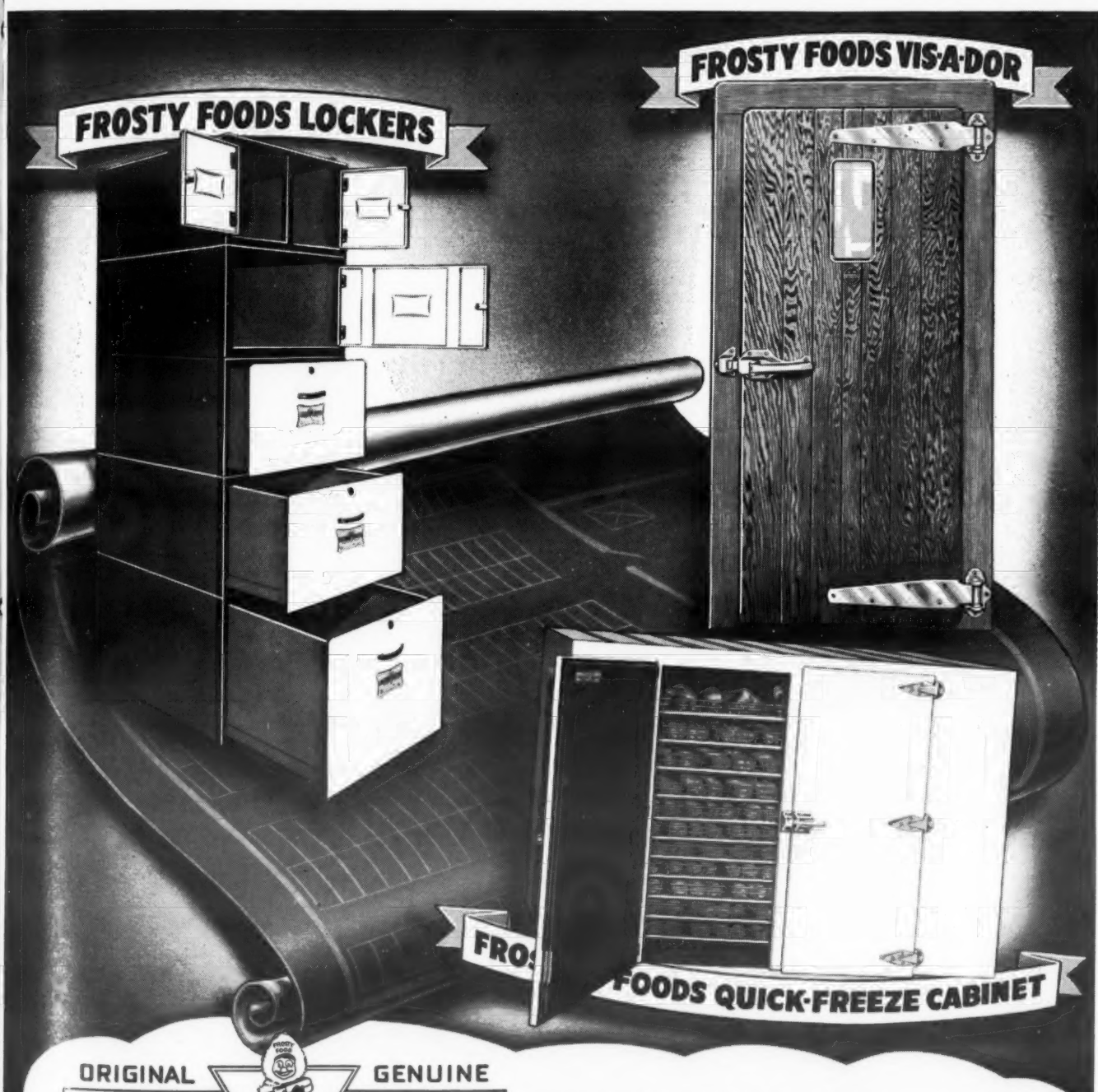
THE QUILENN HOME-FREEZ AT A GLANCE!

1. Approximately 18 cu. ft. capacity for STORAGE and FREEZING. Holds approximately 700 lbs. of meat or equivalent in fruits and vegetables.
2. "Crosswise" arrangement of cold plates provides three compartments for storage and two for freezing... assures convenient segregation of food without groping or "fishing."
3. Ten exposed freezing surfaces keep all foods "close to the cold" and in perfect condition.
4. Platform and partition grilles in base of storage compartments assure "zero-flow" ventilation under as well as around and over every package.
5. Seam-welded construction, extra-heavy insulation and extra-wide gaskets seal in the cold.
6. One-piece lid, counter-balanced for effortless opening. Everything in plain sight with one lift... one look.
7. Easy-to-read, conveniently placed thermometer gauge.
8. Finished in easy-to-clean, mar-resistant white enamel.

SEE THE QUILENN HOME-FREEZ AND THE NEW QUILENN SELF-SERV DELICATESSEN CASE IN BOOTH 1011 AT CLEVELAND'S ALL-INDUSTRY EXPOSITION

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Commercial Refrigeration

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For information about open territory
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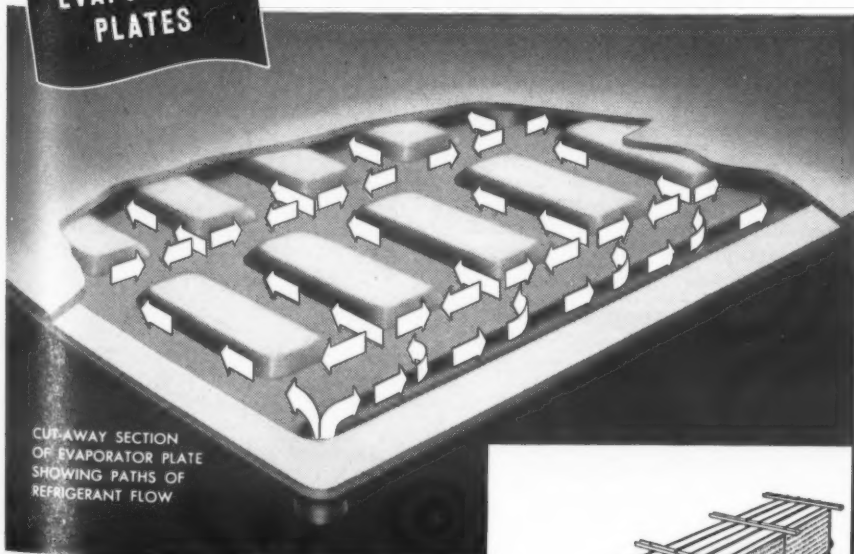
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INTERNATIONAL HARVESTER *Refrigeration*

BTC
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PLATES

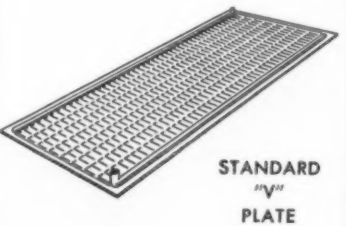
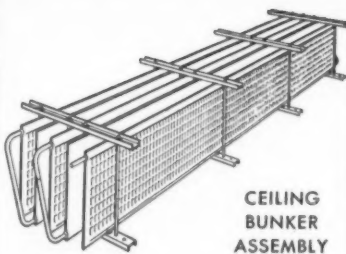
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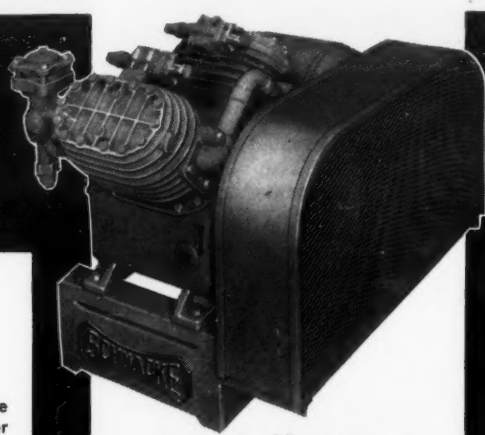
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New Uses For Refrigeration Turn Up Daily

Editor's Note: On this and several pages following are presented descriptions and reviews of types of commercial refrigeration and air conditioning applications which are relatively new or "unusual." Some of them represent applications that were discovered during the war, but which also have an application to peacetime pursuits.

They are offered as an aid to dealers in determining the full potential market for all types of refrigeration and air conditioning equipment.

Low Temperature Walk-ins Declared 'Must' For Super Markets Handling Frozen Foods

BALTIMORE—Low temperature walk-in refrigerators for the storage of frozen foods are virtually a "must" proposition for super-markets, contends J. J. Murphy, of Maryland Refrigeration Co. in Baltimore. He cites the installation of such a unit in the Schreiber Bros. Market in Baltimore, said to be one of the largest retail super-markets in the country.

Schreiber Bros. already had refrigeration equipment valued in excess of \$50,000 and the market was completely air conditioned. The firm asked Mr. Murphy for several used low temperature cabinets for frozen food storage, but he convinced the owners they should have a low temperature walk-in.

This walk-in measures 22½ ft. by

12 ft. 9 in. by 11 ft. 9 in. high—all outside dimensions—and will hold 65,000 lbs. of frozen food (nearly three carloads) at 0° F. The walk-in includes cold plates, a York 5-hp. "Freon" condensing unit, a Dole sectional freezer, and trackage. It was constructed complete by the Murphy organization.

Storage of Film Requires Favorable Temperatures

DETROIT—Both unused and developed photographic film deteriorates rapidly unless stored under favorable conditions of temperature and relative humidity.

It loses pliability, will not lie flat, and becomes foggy and streaked. Also, the film must be kept free from dirt and dust, for repeated showings will develop scratches and loss of clarity.

One manufacturer of film recommends a storage temperature of 50° F. for unused film as being ideal. However, the film should be removed from storage and allowed to warm up to room temperature for at least 24 hours before use to prevent its "sticking" to the camera.

For exposed and developed film the recommended storage conditions are 60° F. and 50% relative humidity. A slightly higher relative humidity is suggested for acetate film.

Air Drying Ends Interruptions In Bouillon Cube Production

NEW YORK CITY—Thanks to a silica gel dehydrator and a refrigeration compressor installed by Carrier Corp., the manufacture of bouillon cubes goes on uninterrupted in all weather at the American Kitchen Products Co. plant here.

Because of the presence of salt and other ingredients, bouillon cubes absorb a great amount of moisture and normally have a tendency to adhere to the automatic compressing and wrapping machines.

This problem had often caused delays and complete stoppages during the summer months and sometimes on humid winter days.

However, with the installation of the dehydrator and compressor, an ideal of 80° F. temperature and 30% humidity, is maintained for handling and compressing the dehydrated bouillon powder.

1-hp. Condensing Unit Cools Three Tons of CO₂ For Airport Fire Fighter

CHICAGO—Tons of carbon dioxide used to extinguish airport crash fires are kept cooled to 0° F. by a 1-hp. Brunner condensing unit installed on the Cardox airport fire truck.

The refrigeration unit is entirely automatic in its operation, with the power supply to the motor controlled by a tank pressure switch. When the carbon dioxide tank pressure rises to 300 lbs. per sq. in., this switch closes and starts the motor. When the carbon dioxide has been refrigerated to the extent that tank pressure is reduced to 290 lbs. per sq. in., the tank pressure switch opens and the compressor stops. Through temperature control, pressure is thus constantly maintained within the range of 290 to 300 lbs.

In fire fighting, the liquid carbon dioxide is discharged from its controlled temperature and pressure into the air and at once becomes part CO₂ snow (dry ice particles) at -110° F. and part cold CO₂ vapor.

The gasoline and fire zone are immediately flooded with a gas that crowds out the oxygen necessary for burning. Vapor and snow rob the fire of its necessary "heat of combustion." Oxygen concentration is reduced, burning vapors are diluted, and hot metals are cooled.

All this is done at so high a rate that 3 tons of carbon dioxide can be unleashed in less than one minute.

Refrigerated 'Eye Bank' Assists Partially Blind

NEW YORK CITY—Through refrigeration, the New York hospital here has established an "eye bank" of corneas from donated human eyes.

The cornea is the bony, transparent shell enclosing the eye. A refrigerated healthy cornea, while still fresh, can be transplanted into the eye of a person whose sight is impaired by an afflicted cornea, it is said.

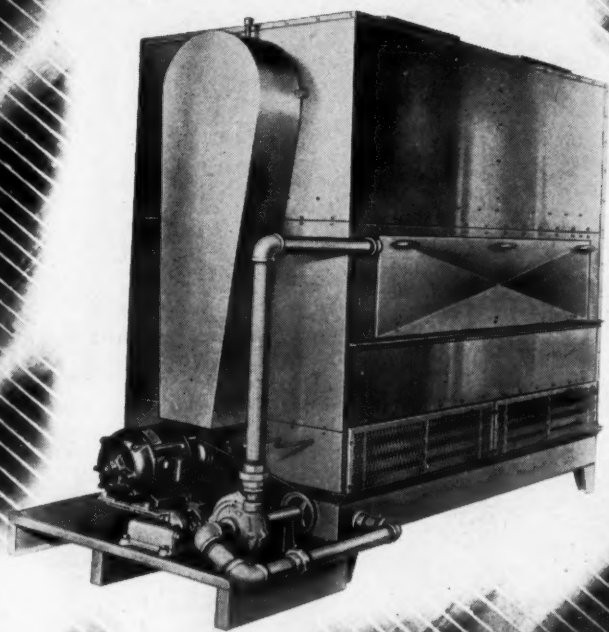
Prof. Vladimir Filatoff, Russian scientist who has done extensive work in transplanting corneas, says that when bits of skin, mucous membrane, placenta, liver, and vascular coating of the eye, as well as corneas, are kept at almost freezing temperature, "substances are developed which, upon being introduced into a diseased organism," have a remarkable healing effect.

Hospital Cools Garbage To Stop Bacteria Growth

PHOENIX, Ariz.—To discourage the growth of bacteria in garbage and to prevent unpleasant odors, the garbage room at St. Monica's hospital here is refrigerated to 55° F.

In the cooled garbage room are placed empty milk bottles, cans, and other kitchen waste, pending removal from the premises.

Refrigeration is supplied by a 1½ ton compressor unit which also holds a meat box at 35° F.



Evaporative Condensers

3 to 100 Tons—All Refrigerants

Low Condensing Temperatures—All Prime Surface Coils,
No Fins—Quiet—Motor Unidrive—
Indoor or Outdoor Units—Durable Construction

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Fur Farmer's Food Storage Needs Indicate Wide Market for Low-Temp Units

LANSING, Mich. — To preserve food for their fur bearing animals, fur farmers require low temperature refrigeration, consisting of an ante room held at 40° F. and a freezer room at from -10° F. to 0° F.

Commercial refrigeration firms desiring to serve this market can obtain names of fur farmers from state conservation departments. Direct mail advertising to fur breeders has produced gratifying results to contractors who have tried it.

A medium temperature condensing unit can operate the 40° F. ante room and a low temperature unit can handle the freezer storage room.

It is possible also to operate the system with a single medium temperature unit of the proper capacity. In the latter case either a solenoid valve or a suction pressure regulating valve may be employed.

A check valve must be installed in the suction line of the low temperature evaporator to prevent the distillation of refrigerant from the warmer evaporator in the ante room during the idle periods.

It is customary to cool the ante room or 40° room through the use of a blower type wall or ceiling mounted coil. The freezer storage room may employ any one of three types of coils successfully.

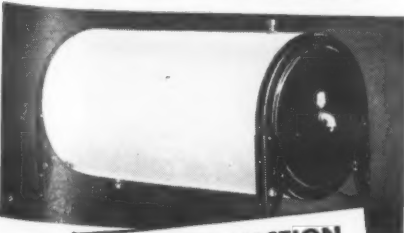
Many freezer rooms use steel pipe coils. These will work successfully, but coils of this type require a large charge of refrigerant in the system and may trap a great deal of oil. With this type of lowside it may, therefore, be necessary to install an auxiliary liquid receiver and a highside oil separator.

Freezer plates are also widely used. While they do not trap such a large amount of oil because the tubing is smaller, an oil separator is still a desirable adjunct to the system, especially on "headered" coils. The freezer plates will also require a smaller auxiliary liquid receiver.

The third type of lowside for the freezer room is the blower type blast freezer. This type is usually equipped with either a water or strip heater defrosting arrangement. Less refrigerant charge is required in the system and will trap less oil. This blast type freezer lowside definitely necessitates daily defrosting through water or other means provided by the manufacturer in order to insure maximum operating efficiency.

It will be found that many of the fur farm installations will involve 2-hp. air-cooled condensing units. As for the storage facilities, many fur farmers have purchased condemned refrigerator cars from railroads and reinsulated them with the equivalent of 6-inch sheet cork in the freezer section and 4-inch sheet cork in the ante room section.

REMOTE WATER COOLERS



NORMAL SUCTION PRESSURE

For drinking water bubbler service, glass filler service, photographic developing, etc. Compact for floor, wall or ceiling installation. Capacities 6 to 25 gallons.

Also available now — cafeteria glass filler coolers, self-contained type bubbler coolers for offices, stores or factories. Write for latest data.

DAY & NIGHT
REFRIGERATION DIVISION
DAY & NIGHT MFG. CO.
One of the Dresser Industries
MONROVIA, CALIFORNIA
SOLD THROUGH REFRIGERATION WHOLESALE AND DEALERS

Commercial Cabinets Used to Freeze, Store Vital Blood Plasma

WASHINGTON, D. C.—Commercially available, low temperature cabinets are well suited for freezing and storing blood plasma, according to officials of the Walter Reed hospital here.

Freezing of blood plasma can be accomplished routinely in ice cream cabinets in three or four hours, it was said.

Frozen plasma should be kept at a constant temperature, preferably between -10° C. and -20° C., it was pointed out.

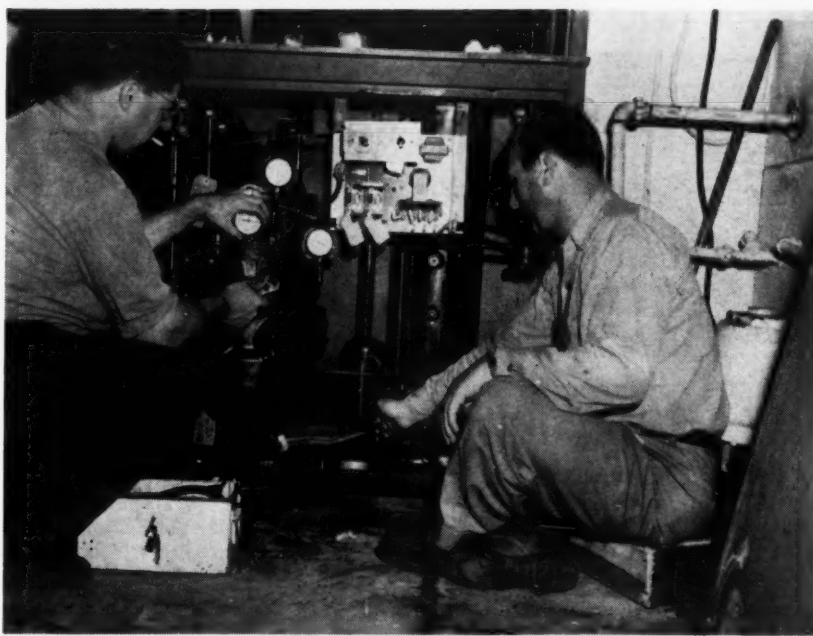
Military hospital units need small portable refrigerators for the storage of whole blood at temperatures of about 4° C. to 6° C.

Although electric current is available in most of the hospital units, when they are set up it is necessary to furnish additional power for the refrigerators when they are transported from one place to another. Therefore one of the requirements is a compressor which is capable of maintaining temperatures in the cabinet at 4° C. to 6° C. when plugged in to regular power lines and which can also be operated by a small generator which develops a third to a half kilowatt of power. These generators provide 110 volt, 60 cycle, a.c. current.

The refrigerator must be sturdy and well insulated so that the required temperature remains constant.

The refrigerated cabinet should be about 3.5 to 4 cu. ft. in size to accommodate 40 to 50 bottles of blood.

Cooling Off the Atom Bomb



Roy M. Coyle, left, and Richard Fennel are shown installing one of the 12 Chrysler Airtemp "packaged" air conditioners that were used to protect delicate parts of the atom bomb for both the Bikini A-Bomb tests. Constant temperature control in the laboratories which were vital to the success of the experiments evidences a little-known application of air conditioning in national defense.

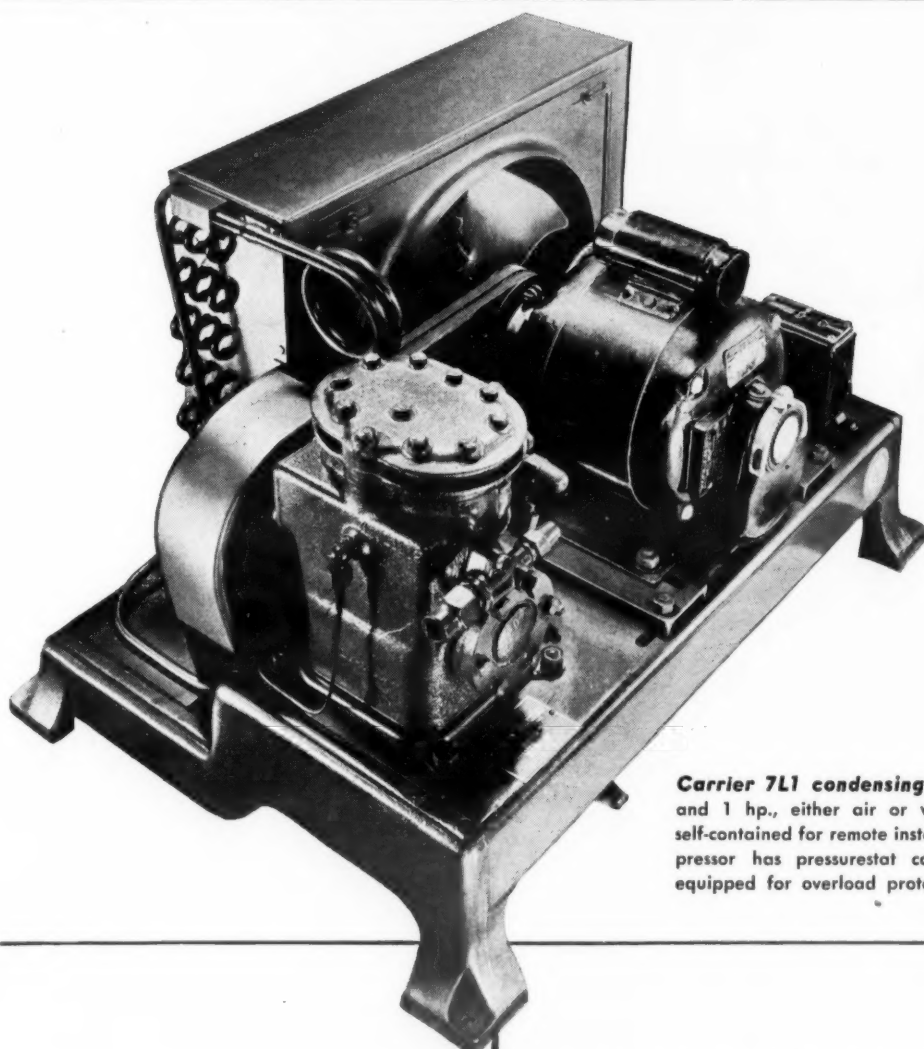
How Refrigeration Aids Mass Breeding of Cattle

DALLAS, Tex. — By refrigerating sperm extracted from a bull to 40° F. and holding it at that temperature, Texas cattlemen have discovered that the sperm remains alive for a period of 10 days. This allows time for the sperm to be flown from Texas to distant cattle-breeding points such as

Argentina, Brazil, and Chile.

Small cabinets holding 1-hp. refrigeration units are used to house the fluid and are plugged into an airplane electrical circuit.

Ordinarily, one bull is needed for every 50 cows, but this new method permits one bull to sire 500 cows.



COUNT ON CONSTANT COOLING

Carrier 7L1 condensing unit, available in 1/2, 3/4 and 1 hp., either air or water cooled. Completely self-contained for remote installation. Two-cylinder compressor has pressurestat control. Heavy-duty motor equipped for overload protection.

Carrier's 7L1 condensing unit is engineered for continuous heavy-duty service. You can count on this proved unit to deliver dependable refrigeration to larger display cases, reach-in cabinets and coolers, and large florist and beverage cabinets. It's streamlined and compact. It has proved itself on thousands of remote installations.

The 7L1 is typical of the full line of units designed and built by Carrier's refrigeration specialists. Besides pioneering comfort and industrial air conditioning, Carrier has been producing refrigerating equipment for more than 40 years. Its units range from 1/4 hp. condensing units for small cabinets and beverage coolers to the famous Carrier centrifugal machine with a capacity of 100 to 1200 tons.

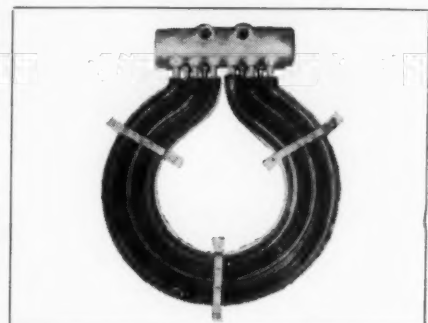
Years of research and unrivaled engineering skill and experience put added value in every Carrier product. You get the benefit in longer service, lower operating cost and greater customer satisfaction. Carrier Corporation, Syracuse, New York.

Carrier

AIR CONDITIONING
REFRIGERATION
INDUSTRIAL HEATING

ROME-CONDENSER

★ Jointless Type ★



Rome Water Cooled Condenser Coils insure trouble-free condensing equipment. Used by leading compressor manufacturers.

**ROME-TURNEY
RADIATOR COMPANY**

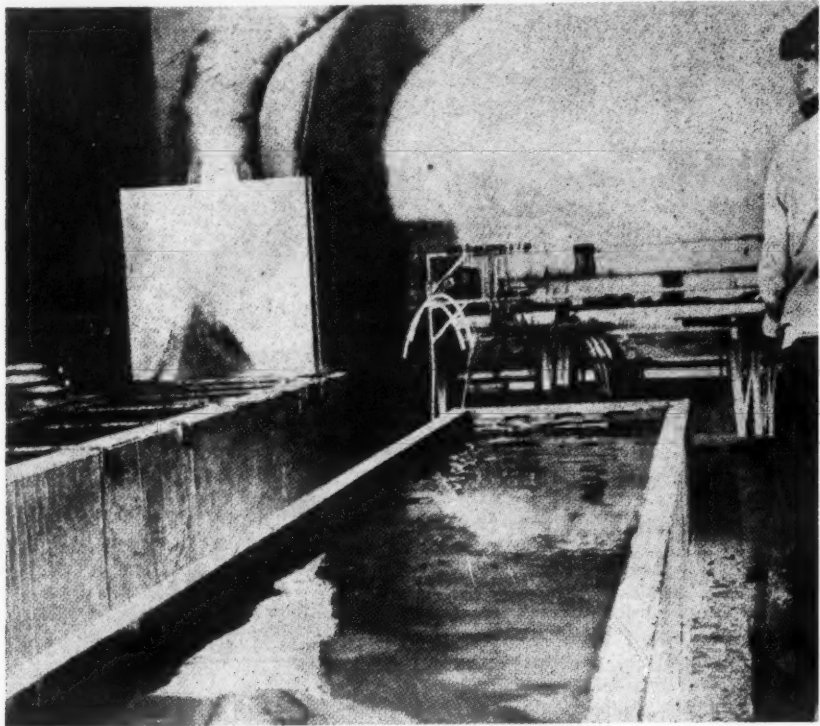
222 CANAL ST.
ROME, N. Y.

ATTENTION REFRIGERATION DEALERS IMMEDIATE DELIVERY

New 1/3 hp. and 1/2 hp. condensing units air-cooled for package and remote installations. Inquiries invited.

Box 2081, Air Conditioning & Refrigeration News

Cooling of Metals Can Offer a Vast New Market for Refrigeration



SANTA MONICA, Calif.—A water quench tank, kept cooled to 42° to 45° F. by Carrier refrigeration equipment, played a vital role in strengthening soft aluminum aircraft parts at the Douglas Aircraft Plant here.

The aluminum alloy parts were heat treated in a tank containing a solution of nitrate salt at 950° F. After a relatively brief period in the nitrate heat bath, the alloy was

rapidly transferred to the water quench tank.

The rapid dash into the water quench tank was said to be necessary because a "delayed" quench causes grain segregation, with subsequent corrosion and weakening of the metal.

The water quench tank measured 4 x 20 x 6 ft. and had a capacity of 3,500 gallons.

Sub-Zero Storage Cuts Aging of Steel From Years to a Few Hours

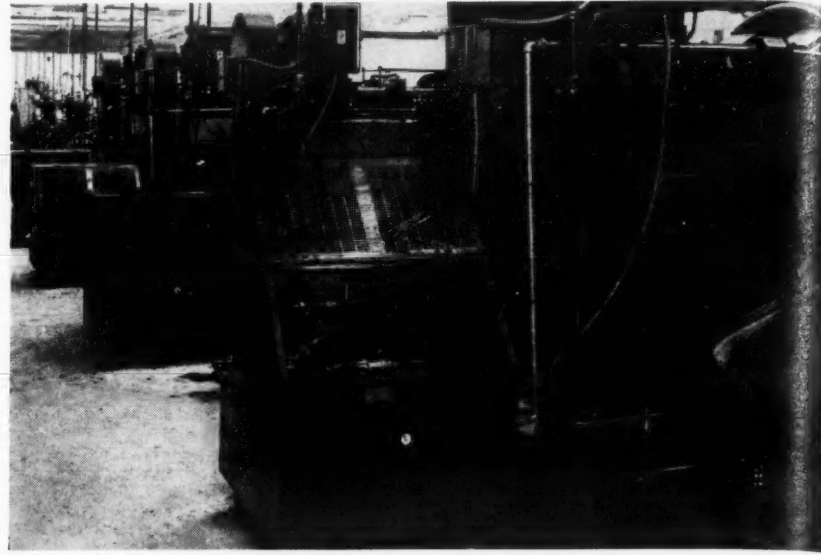
DETROIT—Steel, which normally would be exposed to rain, heat, and snow for several seasons until its quality and texture reached the point where there would be no shrinkage or expansion upon shaping into fine precision instruments or machine tools, can now be processed in a few hours by means of a sub-zero refrigerating system.

Refrigerating systems developed for this purpose use either cold air or a low freezing point liquid, such as mineral spirits, Prestone, or acetone, as the cooling medium.

For aging the steel with the liquid medium, the parts are ground to within .002 in., immersed for eight hours in the -60° F. liquid, restored to room temperature, heated in oil to 200° F. for eight hours, returned to room temperature, immersed in the -60° F. liquid for another eight hours, and then finally finish ground and lapped.

When the air cooled method is used, the parts remain in the refrigerating machine for two hours longer than with liquid cooling.

Advantage claimed for the liquid method is that any strains or stresses will either be relieved or show up in the form of checks when the part is removed from the liquid cooling bath.



Besides cooling of metals directly, refrigeration helps metal production through controlling temperature of cutting oils, as shown above.

Spot Welding Is Speeded In Many Cases Through Use of Refrigerated Electrodes

INDIANAPOLIS—"Definite benefits can be derived in standard a.c. welding with refrigerant cooling," declare three metallurgists of the P. R. Mallory & Co. after extensive tests on the spot welding of aluminum alloys using both water and refrigerant cooling of the electrodes.

"These benefits might be further enhanced by modifying the electrode design," they believe. "The advantages of refrigerant-cooled welding electrodes used in conjunction with the stored energy welding processes should be studied. Test data so far available indicate that the beneficial effects of refrigerant cooling are more pronounced in this type of welding."

The maximum electrode temperature attained with refrigerant cooling is somewhat lower than the temperature attained with water cooling, tests have shown. The maximum temperature obtained with refrigerant cooling at a welding speed of 50 spots per minute is approximately 123° C. (250° F.). Since the original brine solution had a temperature of -36° C. (-32.8° F.) the temperature differential was approximately 159° C. (286° F.).

It was observed that the time required for the temperature to drop from that attained during welding back to the normal temperature of the brine was shorter in the refrigerant cooling than with water cooling. While it took approximately 16 to 19 seconds for the water-cooled welding electrodes to return to a water temperature of 20° C. (68° F.), it took only five to six seconds for the refrigerant-cooled electrodes to

cool to 0° C. (32° F.) after having reached a maximum temperature of 123° C. (253° F.).

The refrigeration system employed in making these tests was a self-contained closed direct expansion "Freon" unit. The low side coils were immersed in a steel tank holding a calcium chloride brine solution. The evaporator coil consisted of about 150 ft. of 3/4 in. pipe. The brine tank was 20 in. in diameter by 36 in. deep and held 36 gals. The temperature of the brine was controlled by a thermostat well immersed in the center of the brine solution.

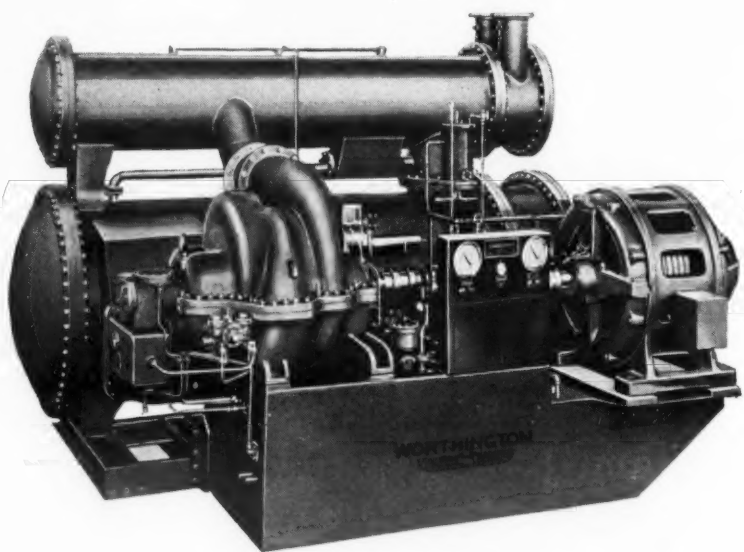
The cooled brine solution was forced through the electrodes and back to the brine tank by a centrifugal pump. The inlet pipe was so arranged as to provide a swirling and stirring action to the brine around the evaporator coils.

In operation a by-pass valve served to regulate the pressure and rate of brine flow through the electrodes. When the electrodes were to be removed from the holders for replacement, the pump motor was shut off and the inlet and outlet valves closed. A small drain stopcock was used to drain the brine from the holders. After the tips were removed the holder tapers were flushed out carefully with warm water.

In order to prevent freezing of the calcium chloride solution at temperatures as low as -45° C. (-49° F.), the concentration of the salt was adjusted to obtain a specific gravity of 1.275 gm./cc. to 1.280 gm./cc. measured at 15° C. (59° F.).

Air Conditioning and Refrigeration Report

Worthington Pump & Machinery Corporation, Harrison, New Jersey



WORTHINGTON CENTRIFUGAL REFRIGERATION SERVES INDUSTRY IN MANY IMPORTANT WAYS

The applications of Worthington Centrifugal Refrigeration are many and varied. Chilling water for air conditioning; chilling water or brine for industrial processes; cooling chemical and other liquids; maintaining constant temperatures in testing rooms—these are but a few of its commoner uses. In addition, its large-volume compressors are well suited for producing ultra-low temperatures for technical research.

A system consists essentially of compressor, condenser and evaporator. Worthington manufactures these in their entirety, from foundry to finished product. For steam-turbine-driven units, Worthington also makes the turbine, as well as many

other auxiliaries vital to a complete refrigeration plant. Rarely does the purchaser have such an opportunity to fix responsibility for a system's over-all operation on a single manufacturer.

Worthington Centrifugal Refrigeration Systems, in capacities ranging from 150 to 2600 tons, combine minimum floor space requirements with maximum accessibility. Their rugged construction, advanced design and outstanding efficiency assure many years of dependable, low-cost refrigeration.

Worthington Pump and Machinery Corporation, Harrison, N. J. Specialists in air conditioning and refrigeration for more than 50 years.



Noted Western Hotel Adds Worthington Air Conditioning

The popular Adams Hotel in Phoenix, Arizona, follows today's trend by installing a Worthington centrifugal refrigeration unit for air conditioning. In assuring its guests of healthful, comfortable air the year round, this modern hotel joins a large and growing list of famous hostilities now using Worthington equipment.



"Packaged Air Conditioning" for Smaller Business Spaces

Worthington Self-Contained Air Conditioners, Model SYC, are ideal for smaller stores, shops, offices. Two sizes: 3-ton and 5-ton refrigeration capacities. For year 'round supply of fresh, clean invigorating air—cooled in summer and heated in winter. A competitive necessity... and another good reason why there's more worth in Worthington.

Look To Worthington for "Integrated" Systems

As makers of so many of the "inner vitals" of an air-conditioning or refrigeration system—compressors, condensers, pumps, turbines, valves, fittings, etc.—Worthington is your logical source for an "integrated" system to give you efficient, economical, trouble-free service. Your nearby Worthington Distributor will gladly supply full details.

WORTHINGTON



Air
Conditioning
and
Refrigeration

STANGARD

Prime Surface

COLD PLATES

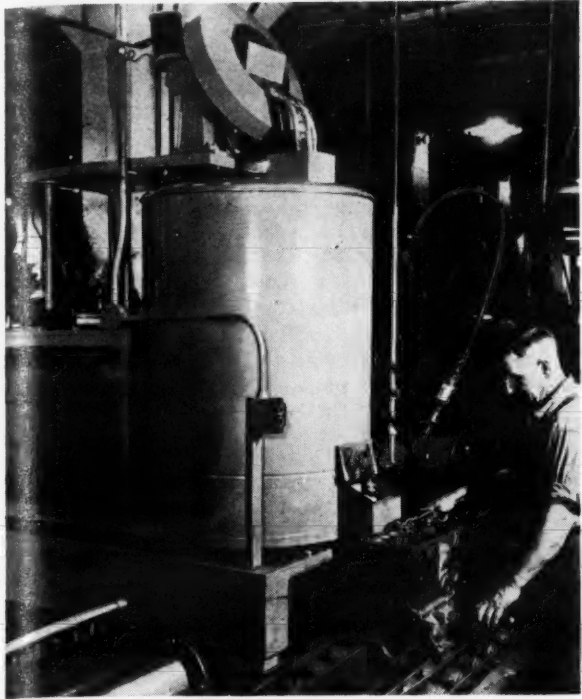
For Maximum
Refrigerating Efficiency



THE STANGARD-DICKERSON CORPORATION

46-76 Oliver Street • Newark 5, N. J.
STANGARD KNOWS REFRIGERATION

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-120° F. Used for Shrink Fits of Engine Parts

On a production line basis, Dodge Division of Chrysler Corp. has experimented with cooling of exhaust valve inserts to permit a shrink fit into the cylinder block of gasoline engines. By cooling to -120° F., the valve inserts shrink .002 in., and when they warm up to normal temperature an exceedingly tight fit is effected. At the left is a general view of the cooling unit and at right is a close-up of the workman placing the insert in the block.

**'Age Hardening' of Aluminum Rivets Is Effectively Retarded by Sub-Zero Units**

PITTSBURGH—Experiments carried out more than 12 years ago at the Aluminum Research Laboratories, New Kensington, Pa., established the fact that age hardening of aluminum could be temporarily retarded by subjecting the metal parts to sub-freezing temperatures.

Prior to the use of refrigeration, handling of rivets was largely a race against time, in which the riveter strove to drive as many rivets out of a batch as possible before they became too hard to use. High strength alloy rivets, immediately after quenching, have the workability of annealed aluminum; and it is at this stage that they can be handled with best results.

However, age hardening begins within a very few minutes after quenching, and at ordinary temperatures, these rivets may become so hard within 30 minutes that they may crack when they are driven.

Early riveters required constant supplies of fresh rivets, and all rivets held longer than 15 minutes were returned to the furnace for reheat treating. This meant a serious waste of time, especially where the riveter was working at a remote point in the plant.

In present large scale production, rivets are heat treated and quenched in large numbers at a central location and distributed throughout the plant in a refrigerated state for subsequent use. Often the rivets are cooled rapidly in refrigerated quenching water after which they are immersed in refrigerated alcohol. The alcohol bath prevents the rivets from sticking together and making them difficult to handle.

Not only rivets but other aluminum parts as well are being refrigerated today in order to permit easier fabrication. Forming opera-

tions so severe that they would break a section of age-hardened aluminum sheet are carried out with ease on "as quenched" material that has been refrigerated. In some cases it is desirable to partially pre-form aluminum aircraft sections before heat treatment, and here refrigeration is employed to hold the section after heating and quenching at a workable stage until final fabrication.

Where a temperature of 32° F. is achieved directly after quenching, aging is retarded for at least 16 hours, after which aging proceeds very slowly, requiring approximately two weeks for final completion. Where aluminum alloys are refrigerated immediately to 0° F., after quenching, there is no apparent aging for at least a week. In test cases permit a retarding temperature of -108° F., aging has been retarded almost indefinitely.

Once age hardening has started, no amount of further refrigeration will restore the original "as quenched" workability to the metal. It is extremely essential that refrigeration be applied immediately after quenching and that this refrigeration be held as constant as possible, allowing no opportunity for the aluminum parts to approach room temperature until final application.

While aging is effectively retarded at freezing temperatures, in practice it has been found desirable to drop the temperature to a considerably lower point in order to permit a "margin" of coldness as a safeguard against accidental variations in temperature. Some aircraft companies have found that a reduction in temperature to 0° F. is ample for their needs, while in other places, conditions are such that temperatures as low as -30° or -40° F. are desirable.

ment process again.

The cork insulated refrigerator room was 18 ft. long by 14 ft. wide and 10 ft. high, with 11 in. walls.

Heat treated parts were placed on shelves where workmen could reach them through small shoulder high doors. Each door bore a list of the parts within reach so that the room need be opened no longer than necessary. A large door at the end permitted entry with big parts.

A 10-hp. condensing unit supplied refrigeration through blower type units in the cooler. The blower unit was specially designed by the York Corp., which installed the "room," for low temperature work. The blower fans ran continuously except when the door was opened. Then a switch connected to the door shut them off, thus preventing excessive losses in refrigeration.

The refrigeration load was determined by calculating the heat loss through the 8 in. of cork insulation with the temperature differential between the factory temperature of 95° F. and the inside box condition of -20° F.; the pounds of aluminum per hour entering the chamber; the temperature of the aluminum entering the chamber; and the specific heat of the aluminum. Air changes brought about by the opening of the door were also taken into account.

"Hello Cleveland" — the cigars are on us WE PROUDLY ANNOUNCE — A PAIR OF TWINS

One is a new type of reciprocating compressor designed for speeds to 1750 r.p.m. Ruggedly constructed yet very compact, it is dynamically balanced for vibrationless operation at all speeds. High volumetric efficiency and B.T.U. capacity at related speeds, results in a versatile component for tailoring to many applications.

The other TWIN is a conventional slow speed, heavy duty compressor, designed to give that extra margin of safety and performance on the TOUGH commercial jobs.

BOTH are manufactured of the finest steel and phosphor bronze forgings and are built to endure. They are truly Thoroughbreds.

For use with Methyl-Chloride, Sulphur dioxide and the "Freon" group of refrigerants. No aluminum or its alloys are used in their construction.

We invite inquiries from interested Jobbers and Equipment manufacturers.

DOUGLAS EQUIPMENT CORPORATION

74 Colden Street - Phone Market 2-6868 - Newark 4, N.J.

Wilson ZERO-FLOW
MODEL ZFS HX50

STOPS MILK SPOILAGE

Packaged-Unit Milk Cooler
Sizes from 4- to 24-can capacity

COOLS THE DANGER ZONE FAST

TO CAPTURE AND HOLD THE FARM MARKET

Specify Genuine "Refrigeration by Wilson"

• FARM MILK COOLERS • FARM FREEZERS • FARM REACH-IN REFRIGERATORS • FARM WALK-IN REFRIGERATORS

For Franchise Information, Address Dept. 11 WILSON REFRIGERATION, INC., Smyrna, Delaware

CORDLEY
Electric
WATER COOLERS

Stop in and rest at the
CORDLEY GARDEN

BOOTH No. 1004
ALL-INDUSTRY EXHIBIT

• This is your invitation to what we hope will be one of the most inviting displays at the All-Industry Convention in Cleveland.

In a natural garden setting you will find plenty of room to sit down and relax... plenty of perfectly cooled water served as only Cordley Electric Water Coolers can serve it... and a preview of the newest offerings by one of the oldest water cooler manufacturers.

CORDLEY AND HAYES
443 FOURTH AVENUE, NEW YORK 16, N. Y.

Aluminum Sheets Cooled To Retain 'Workability'

DETROIT—To keep heat treated aluminum alloy in a "soft" condition so that it could be worked into bomber fuselage sections and wings during the war, a refrigerated storage room which held a -20° F. temperature was installed in the Hudson Motor Car Co.'s aircraft division here.

In those crucial days, the refrigerated storage room effected savings in time and materials by keeping the alloy from becoming too hard to be worked. If the alloy became too hard, it required another 16 to 24 hours to go through the heat treat-

KRACK
ENGINEERED
UNIT COOLERS
FIN COILS
AIR CONDITIONING
Refrigeration Appliances, Inc.
923 W. Lake St., Chicago 7, Ill.

Air Conditioning & Commercial Refrigeration Shipments July-December, 1945

Bureau of Census Figures Provide the First Overall Statistics For a Postwar Period

Introduction

This is the fourth report in a series beginning with the year 1940 presenting the operations of the air conditioning and commercial refrigeration equipment industry. This report, covering the period July through December 1945 supplements the statistics published in a similar release issued May 9, 1946, covering the first half of 1945, thereby presenting complete data for the year 1945.

The release is based on reports received from manufacturers on Census Form M52A, Air Conditioning and Commercial Refrigeration Equipment, and on estimates which were made for a few companies whose reports were not received in time to be tabulated.

The statistics in this report cover all types of air conditioning and commercial refrigeration equipment normally sold as standard items and also the more important types of components and accessories for such equipment. The report does not include certain types of air conditioning and commercial refrigeration unitary equipment manufactured to order for special uses. Also excluded are a number of components and accessories (such as switches, dehydrators, accumulators, valves and surge drums, and tanks).

COVERAGE OF SURVEY: The companies included in this report accounted for more than 98% of the total value of air conditioning and commercial refrigeration equipment shipped in the period July through December 1945. For some products, the coverage is lower than 98% because of the large number of products on the reporting form, some of which are produced in only a few plants. However, the coverage is at least 95% for most products and probably does not fall below 90% for any one product.

The data for July through December 1945 reflect the operations of 207 manufacturers. This number is 11 more than the 196 manufacturers included in the survey for January through June of the same year. This increase was due partly to the resumption of activity of a few companies that did not produce during the first half of the year because materials were not available, and partly to the addition of a few new companies to the field of commercial refrigeration and air conditioning equipment.

CONTENT OF REPORT: The tables of this report present information on manufacturers' shipments of air conditioning and commercial refrigeration equipment and purchases of components for this equipment.

These data are shown separately for air conditioning and commercial refrigeration unitary equipment (tables 1, 2, and 4) and for components and accessories of air conditioning and commercial refrigeration equipment (tables 3 and 5). Tables 1, 2, and 3 are summary tables and tables 4 and 5 present detailed information by type of product.

Tables 1 and 4 show data on shipments of complete units and enclosures. Tables 2 and 4 present information on purchases of condensing units, compressor units, and forced air evaporators for incorporation in unitary equipment, and on enclosures purchased either for incorporation in unitary equipment or for resale.

Tables 3 and 5 present data on domestic and export shipments. These tables also show figures on purchases of compressors, compressor units, and condensers for incorporation in the purchasers' equipment, and on purchases of complete units for resale. In addition, table 5 shows production of condensing units for incorporation in unitary equipment made by the same manufacturer.

SIGNIFICANCE OF PURCHASE DATA: Data on purchases of components included in this report provide:

(1) A picture, by type of component, of the number and value of components purchased for incorporation in different kinds of unitary equipment.

(2) A basis of estimating, for the air conditioning and commercial refrigeration equipment industry as a

whole, the net value of shipments, minus the duplication caused by inclusion of unitary equipment components in the shipments of both unitary equipment and component manufacturers. This figure can be calculated by subtracting, from the total value of shipments in tables 1 and 3, an estimated total value for the condensing units and compressor units purchased as shown in table 2.

(3) A basis of determining, for various types of unitary equipment, the net value contributed by the unitary equipment manufacturer. This value can be derived, for an individual product in table 4 or a group of products in tables 1 and 2, by subtracting the value of components purchased from value of shipments.

(4) A means of determining the number of components and accessories shipped by manufacturers, minus the duplication caused by resale, in the same form, of components and accessories within the industry. This figure can be obtained, for each product or group of products in tables 3 and 5, by subtracting the number of complete units purchased

from complete units shipped.

The value of the resulting net quantity can be estimated on the basis of the unit value for the product or product group which is available from the tables. Also, the total number of condensing units produced can be estimated from table 5 by subtracting the number of complete units purchased from the sum of units shipped and units produced for fabrication into unitary equipment.

COMPARISON OF DATA OF SECOND HALF OF 1945 WITH PRECEDING PERIODS: There was a marked increase in shipments of nearly all types of unitary equipment during the last six months of 1945 over the first half of the year. The total number of units shipped increased 21%, from 97,742 in the period January through June to 118,217 for July through December.

Even more significant, however, is the fact that the total number of units shipped during the entire year 1945 increased to 215,959. However, shipments of unitary equipment during 1945 were still only 64% of the 338,796 units shipped during 1940.

Table 1—Shipments of Unitary Equipment: Summary By Class of Product July-December, 1945

Product	Shipments of Complete Units		Self-contained Units		Remote Units		Shipments of Enclosures Only	
	No.	Value (dollars)	No.	Value (dollars)	No.	Value (dollars)	No.	Value (dollars)
Total	118,217	36,382,838	103,875	27,819,320	14,342	8,563,518	30,945	6,807,995
Total, except absorption systems	118,217	35,367,792	103,875	27,819,320	14,342	7,548,472	30,945	6,807,995
Walk-in coolers	3,800	3,556,099	712	1,016,317	3,088	2,539,782	3,247	3,122,005
Refrigerators	18,787	6,378,656	15,740	5,032,700	3,047	1,345,956	2,854	671,373
Beverage cooling and dispensing equipment	4,745	1,027,015	*	*	*	*	4,774	379,341
Display cases	5,666	3,107,769	922	397,758	4,744	2,710,011	1,802	817,706
Soda fountain equipment and ice cream cabinets	5,177	1,998,578	*	*	*	*	*	*
Soda fountain equipment	1,101	640,143	953	590,231	148	49,912	†167	†48,208
Ice cream hardening and dispensing cabinets, and counter freezers	4,076	1,358,435	*	*	*	*	*	*
Frozen food cabinets	5,796	1,500,475	5,678	1,457,576	118	42,899	742	155,101
Farm and dairy milk coolers, mechanical	20,306	2,833,603	18,791	2,700,539	1,515	133,064	§654	§55,511
Drinking water coolers, mechanical and non-mechanical	42,099	5,386,920	41,798	5,346,305	301	40,615	2,133	137,069
Laboratory and industrial freezing equipment	191	111,047	*	*	*	*	†	†
Ice making machines	1,135	1,705,928	*	*	*	*	†	†
Air conditioning units	10,515	7,761,702	10,515	7,761,702	.....	.....	.....	.....
Store type	9,850	7,589,313	9,850	7,589,313	.....	.....	.....	.....
Room type	665	172,389	665	172,389	.....	.....	.....	.....
Absorption systems	.....	1,015,046	.....	.....	.....	1,015,046	.....	.....
Cold storage doors	.....	.....	.....	.....	.....	.....	13,297	1,186,278

*Data for self-contained and remote units are not shown separately in order to avoid disclosure of operations of individual companies.

†Included only in totals to avoid disclosure of operations of individual companies. ‡Preliminary figures for shipments of farm milk coolers were published in the "Facts for Industry" on Farm Machines and Equipment: 1945, Series M35A-05, released Sept. 3, 1946. The data on farm and dairy milk coolers, mechanical, presented here are revised to include a few reports received after tabulation of the reports on Farm Machines and Equipment.

§Includes immersion type only. Data for tubular or surface type appear only in totals to avoid disclosure of operations of individual companies.

||Includes blood plasma cabinets, instrument treating cabinets, rivet coolers, and cutting tool or spot welding coolers (coolant). No data were reported for cutting tool coolers (oil).

||Data were requested separately for domestic and export shipments of the following items:

Air conditioning units, store type—domestic shipments, 8,882 units, \$6,562,655; export shipments, 968 units, \$1,026,658.

Air conditioning units, room type—domestic shipments, 192 units, \$25,711; export shipments, 473 units, \$146,678.

Absorption systems—domestic shipments, \$861,997; export shipments, \$153,049.

Table 2—Purchases of Condensing Units, Compressor Units, Forced Air Evaporators, and Enclosures for Incorporation in Unitary Equipment or for Resale: July-December 1945

(Purchases of enclosures for non-mechanical beverage cooling and dispensing equipment, and drinking water coolers, as well as cold storage doors, represent purchases for resale only.)

Class of Equipment	Condensing Units (number)	Compressor Units (number)	Forced Air Evaporators (number)	Enclosures Only (number)	Total Value (dollars)
Total	54,929	23,399	8,876	12,141	5,186,088
Walk-in coolers	2,384	430	1,695	18	977,899
Refrigerators	13,392	580	5,500	216	1,086,465
Beverage cooling and dispensing equipment	1,502	64	512	428	184,362
Display cases	1,642	1,607	1,084	3	315,721
Soda fountain equipment and ice cream cabinets	1,394	1,135	.....	.....	211,353
Soda fountain equipment	115	752	.....	.....	94,878
Ice cream hardening and dispensing cabinets and counter freezers	1,279	383	.....	.....	116,475
Frozen food cabinets	5,041	1,034	85	.....	331,154
Farm and dairy milk coolers, mechanical	14,041	25	.....	2,250	852,065
Drinking water coolers, mechanical and non-mechanical	15,289	18,296	.....	8,973	945,068
Laboratory and industrial freezing equipment	183	8	.....	.....	18,871
Ice making machines	61	220	.....	231	261,909
Air conditioning units	.....	.....	.....	.....	.....
Store type	.....	.....	.....	.....	.....
Room type	.....	.....	.....	.....	.....
Absorption systems	.....	.....	.....	.....	.....
Cold storage doors	.....	.....	.....	22	1,231

*Data for purchases of components for air conditioning units are not shown because such information was not requested for condensing units. Data compiled on compressors only were, therefore, incomplete.

†Includes blood plasma cabinets, instrument treating cabinets, rivet coolers, and cutting tool or spot welding coolers (coolant). No data were reported for cutting tool coolers (oil).



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1002]

● With a background of 50 years as specialists in heat transfer equipment, many of which have been devoted specifically to the design and manufacture of refrigeration products, the men of this industry will find Fedders looking ahead and going ahead. We look forward to seeing you at the All Industry Exhibition.

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Bureau of Census Does Best To Provide Much-Needed Statistics

The available statistics on sales of commercial refrigeration and air conditioning equipment in all years prior to 1940 were woefully inadequate. The reason was simple. There were no groups—either in industry or government—who were collecting and publishing data that would give any kind of a statistical picture of the industry.

In 1940 the Bureau of Census of the U. S. Department of Commerce published the first of its statistical reports on "Air Conditioning and Commercial Refrigeration Equipment." To many in the industry, this seemed a constructive step towards obtaining the kind of figures that would give some picture of the industry's overall sales volume.

The war years, of course, interrupted the collection of statistical data covering anything like a normal operation. However, these years were not without their value to the government's statistic-collecting program, since the Bureau of Census personnel took advantage of the talents of the many men from the industry who came to Washington to assist in various programs, and with this assistance worked out a complete and up-to-date reporting form.

The reports submitted on this form constitute the basis of the statistical data reported by the Bureau of Census under the title "Air Conditioning and Commercial Refrigeration Equipment, July-December, 1945," which is published in this issue. This is really the first significant report since 1940, for the reason that the great share of the sales reported will be for the normal peacetime applications. In fact, where manufacturers reported special units and systems made for the armed services, such figures were not included in the Bureau's tabulation.

Before publishing these figures the editors of the News queried several individuals in the industry who should know, as to their opinion of the figures and the validity of the Bureau's claims that "the companies included in this report accounted for more than 98% of the total value of equipment shipped in the specified period."

The responses to this inquiry covered a wide range of opinion. Some seemed to think that the claim of the "98% completeness" could be substantiated, while others cast a doubt on parts of the tabulation, believing the reports to be incomplete, and the totals therefore to be low.

Consensus seemed to be that the figures might be very close to the mark on some items, but might not represent so completely such classifications as home freezers, beverage coolers, some kinds of refrigerated fixtures, and possibly certain components.

Reason for this doubt is the fact that there are numbers of small manufacturers in these classifications of whom the Bureau of the Census is unaware, and who in turn are unaware that they can be helping the industry by reporting their figures. And then there is the unknown percentage that is allergic to reporting anything to the government, or to reporting their sales figures to anyone.

The commercial refrigeration and air conditioning fields have always been highly competitive, and consequently many firms have been loath to give out any information on their sales. But they should certainly have no fear of reporting their figures to the Bureau of Census.

As one veteran industry executive puts it: "These are the kind of statistics that I consider valuable. With this report, each company can make comparison with the rest of the industry who make similar products. This means a lot to us. I give the Bureau of Census full credit for doing a painstaking and accurate job. They should be commended for it."

If you are a manufacturer of a product listed in this tabulation and are not reporting on form M52A, you can do your part by writing David E. Cohen, Industry Division, Bureau of Census, Washington 25, D. C.

Table 3—Shipments of Components and Accessories for Unitary Equipment and Purchases of Components: Summary by Class of Product Shipped, July-December 1945

Product	Shipments of Complete Units			Purchases of Complete Units and Components			
	Total No.	Total Value (dollars)	Domestic* No.	Domestic* Value (dollars)	Export† No.	Export† Value (dollars)	Total Value (dollars)
Total		40,331,825		38,091,571		2,240,254	1,261,209
Condensing units	222,901	19,963,353	213,399	18,681,021	9,502	1,282,332	936,812
Ammonia refrigerants	820	951,871	728	849,974	92	101,897	10,693
Refrigerants except ammonia	222,081	19,011,482	212,671	17,831,047	9,410	1,180,435	936,812
Air cooled	206,851	12,888,128	198,424	12,220,119	8,427	668,009	623,185
Water cooled	15,230	6,123,354	14,247	5,610,928	983	512,426	313,627
Compressors and compressor units	55,464	5,880,390	54,398	5,411,859	1,066	468,531	25,103
Ammonia refrigerants	1,988	3,261,573	1,781	2,855,790	207	405,783	10,693
Refrigerants except ammonia	53,476	2,618,817	52,617	2,556,069	859	62,748	14,410
Centrifugal refrigeration machines	151	2,292,873	147	2,231,193	4	61,680	...
Heat exchanger equipment	...	12,195,209	...	11,767,498	...	427,711	291,968
Evaporative condensers	1,775	1,758,386	1,717	1,711,193	58	47,193	48,560
Unit coolers	51,647	6,085,612	49,686	5,856,454	1,961	229,158	150,303
Air conditioning	2,133	1,162,024	2,069	1,130,296	64	31,728	7,928
Refrigeration	49,514	4,923,588	47,587	4,726,158	1,917	197,430	142,375
Other heat exchanger equipment	...	4,351,211	...	4,199,851	...	151,360	93,105

*Continental United States.

†Includes Canada, Mexico, and United States territories.

Includes condensers and liquid coolers of shell and tube and shell and coil types, as well as fin coils (heating and cooling) and plate type evaporators.

Admiral Corp. Profits Jump In 3rd Quarter

CHICAGO — Ross D. Siragusa, president of Admiral Corp., announced last week that Admiral and subsidiary companies' consolidated net profits for the nine months ended Sept. 30, 1946, after Federal Income Taxes, but before prior year's renegotiation adjustments of \$137,000, amounted to \$942,000.

Net profits increased from \$352,000 for the second quarter to \$584,000 for the third quarter.



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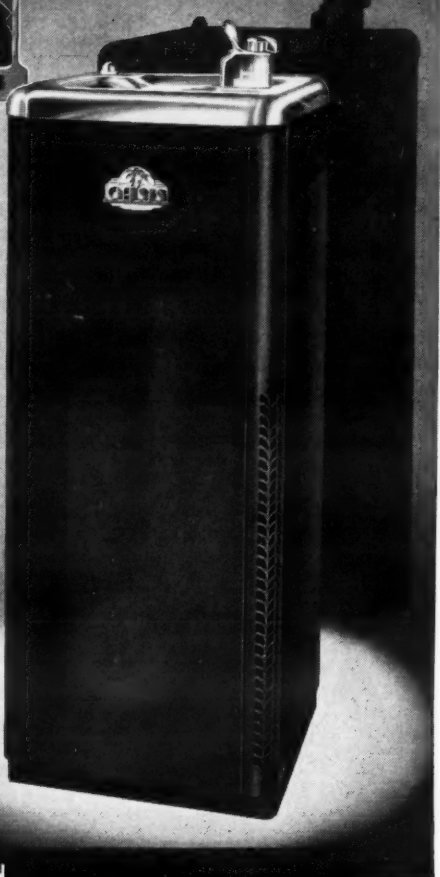
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In the graceful, flowing lines of its gleaming stainless steel top—in the sleek beauty of its lustrous, walnut-bronze cabinet—and even more in the dependable convenience of its easy-to-drink-from performance, the new OASIS ELECTRIC WATER COOLER is a crowning achievement in EBCO's two decades of water-cooler leadership! See it at the 4th All-Industry Exposition, Cleveland, Ohio, Oct. 29 to Nov. 1, EBCO Booth 201.



OASIS COOLER DIVISION
The EBCO Manufacturing Co. 401 W. Town Street
Columbus 8, Ohio

Table 4—Shipments of Unitary Equipment and Purchases of Components, By Type of Product Shipped

Product	Shipments of Complete Units										Purchases of Components					No. of Plants Reported
	Total		Self-contained Units		Remote Units		Shipments of Enclosures Only		Con- densing Units	Compres- sor Units	Air Evapo- rators	En- closures Only	Total Value (dollars)			
	No.	Value (dollars)	No.	Value (dollars)	No.	Value (dollars)	No.	Value (dollars)								
Total	36,382,838	103,875	27,819,320	8,563,518	30,945	6,807,995	54,929	23,399	8,876	12,141	5,186,098	175				
Total, except absorp- tion systems	118,217	35,367,792	103,875	27,819,320	14,342	7,548,472	30,945	6,807,995	54,929	23,399	8,876	12,141	5,186,098	168		
Prefabricated walk-in coolers and cold storage doors, total...																
Walk-in coolers	3,800	3,556,099	712	1,016,317	3,088	2,539,782	16,544	4,308,283	2,384	430	1,695	40	979,130	82		
Cold storage doors.	3,800	3,556,099	712	1,016,317	3,088	2,539,782	3,247	3,122,005	2,384	430	1,695	18	977,899	78		
Reach-in refrigera- tors, total	18,787	6,378,656	15,740	5,032,700	3,047	1,345,956	2,854	671,373	13,392	580	5,500	216	1,086,465	56		
16 to 25 cubic feet, wall type	6,373	1,781,932	6,330	1,757,555	43	24,377	721	110,529	5,585	304	1,458	153	279,615	30		
26 to 40 cubic feet, wall type	6,238	1,695,604	6,032	1,630,848	206	64,756	754	155,685	4,215	201	2,131	17	292,712	34		
41 to 60 cubic feet, wall type	3,473	1,427,890	2,191	943,329	1,282	484,561	858	222,145	2,376	24	878	39	242,422	36		
61 cubic feet and over, wall type and counter type (all sizes)....	2,703	1,473,230	1,187	700,968	1,516	772,262	521	183,014	1,216	51	1,033	7	271,716	33		
Display cases, total....	5,666	3,107,769	922	397,758	4,744	2,710,011	1,802	817,706	1,642	1,607	1,084	3	315,721	45		
Single duty, total....	881	423,684	24	13,481	857	410,203	420	201,018	99	14	174	.....	20,036	19	
Under 8 feet	69	38,395	.....	.....	69	38,395	21	6,310	1	2	4	.....	700	9
8 feet	43	13,669	*	*	*	*	*	*	4	1	4	.....	1,187	9	
10 feet	542	228,376	*	*	*	*	399	194,708	59	1	88	.....	7,199	14	
12 feet and over....	227	143,244	*	*	*	*	35	10	78	.....	.....	.....	10,950	15
Double duty, total....	3,904	2,195,621	602	284,821	3,302	1,910,800	726	303,445	1,053	1,464	596	.....	217,830	32	
Under 8 feet	705	264,808	288	108,395	417	156,413	122	39,881	247	127	273	.....	34,651	20	
8 to 12 feet	3,193	1,924,180	314	176,426	2,879	1,747,754	604	263,564	803	1,336	320	.....	180,473	29	
Over 12 feet	6	6,633	.....	.....	6	6,633	.....	.....	3	1	3	.....	2,706	6
Full vision or delicatessen, total	239	100,404	153	64,503	86	35,901	20	9,334	9	19	85	1	6,851	14		
Under 6 feet	18	6,560	.....	.....	18	6,560	.....	.....	5	13	1	.....	2,591	3
6 to 8 feet	184	75,773	*	*	*	*	13	5,735	1	6	40	.....	1,997	9	
Over 8 feet	37	18,071	*	*	*	*	7	3,599	3	.....	44	1	2,263	8	
Vegetable, total	206	145,835	*	*	*	*	636	303,909	175	67	83	.....	38,924	14	
Up to 7 feet	17	6,544	*	*	*	*	.....	.....	19	9	6	.....	1,650	5
Over 7 feet	189	139,291	*	*	*	*	.....	.....	156	58	77	.....	37,274	11
Wall type dairy, total.	202	150,720	.....	.....	202	150,720	.....	.....	135	.....	137	.....	19,713	12
Up to 7 feet	25	17,124	.....	.....	25	17,124	.....	.....	18	.....	12	.....	1,620	5
Over 7 feet	177	133,596	.....	.....	177	133,596	†	†	117	.....	125	.....	18,093	10
Fish, total	55	26,964	.....	.....	55	26,964	.....	.....	10	.....	.....	.....	797	10
Florist, total	18	21,147	.....	.....	18	21,147	.....	.....	8	7	9	2	3,537	9
Frozen food, total	161	43,394	*	*	*	*	.....	.....	153	36	.....	.....	8,033	14

*Data for self-contained and remote units are not shown separately in order to avoid disclosure of operations of individual companies.
†Enclosures for all types and sizes combined to avoid disclosure of operations of individual companies.

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F.O.B. Grand Rapids

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"THE ARISTOCRAT OF HOME FREEZERS"

Promoting Refrigerated Animal Vaccine Serum, Druggist Draws Vast Farmer Trade

LINCOLN, Neb.—A commercial type refrigerator placed prominently in the center of the Barth Drug store's unusually large animal health department has played a very important part in building up what is said to be the largest volume of veterinary supply and animal health product sales in a Nebraska drug store.

The refrigerator is used for storage of biologicals and its location in the center of the store not only enables drug clerks to give faster service to farm patrons, but serves as a highly efficient display piece, according to Don Barth, co-proprietor.

The Barth store is located at 141 South 9th street, a section of Lincoln where farmers do considerable marketing of produce. Mr. Barth took advantage of this location to boost a health department for farm animals and poultry, and met with such good response that today approximately half of the drug store's selling space is devoted to the "Stock Department." An average of 250 farm customers is served daily.

A prime factor in this phenomenal growth has been the providing of a

real service to the farmers by stocking the various animal health products so that the farmer can get what he needs when he needs it. Serums and vaccines kept fresh by refrigeration have been an integral part of this service, Mr. Barth pointed out.

A year and a half ago the department had grown to the point where more room had to be provided. With fixtures at a premium, due to war shortages, Mr. Barth made his own display fixtures, providing a shelf display along the entire length of one wall, with a canopied space at the center for the installation of the large refrigerator. Over the refrigerator a neon sign, "Stock Department," was installed.

The stock of refrigerated animal drugs is featured in window displays, farm publication advertising and mailing pieces sent out to farmers in the Lincoln trade area. Typical of these is a mimeographed sheet sent out to about 2,000 farmers.

Across the top in large letters are the words, "VACCINES AND SERUMS." Other copy reads, "Refrigerated at below 45 degrees," "refrigerated to insure freshness."

"Advanced" Refrigeration Compressor

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Use it on anything from a frozen food cabinet to a room-cooling unit. The "ADVANCED" Refrigeration Compressor will stand up and deliver because it is designed, built and backed by us from the raw materials on.

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Compressor Division
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"ADVANCED" Refrigeration Compressor, Model 100—1 1/2" x 1 1/4" 2 cyl. flywheel 10" diam., 2-groove "A" section—1/2 HP. For use only with Freon refrigerant.

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Table 4 (Cont.)—Shipments of Unitary Equipment and Purchases of Components, By Type of Product Shipped

Product	Shipments of Complete Units						Purchases of Components								No. of Plants Reporting
	Total		Self-contained Units		Remote Units		Shipments of Enclosures Only		Condensing Units	Compressor Units	Air Evaporators	Enclosures Only	Total Value		
	No.	Value (dollars)	No.	Value (dollars)	No.	Value (dollars)	No.	Value (dollars)							
Bottled beverage cooling equipment, total ..	4,166	649,241	3,287	411,060	879	238,181	1,861	143,352	651	64	512	175	77,557	27	
Mechanical dry and wet types (except coin operated)	4,166	649,241	3,287	411,060	879	238,181	431	54,077	651	64	512	175	77,557	25	
Non-mechanical type (except coin operated) and coin operated head only .....	....	....	....	....	....	....	1,430	89,275	....	....	....	....	....	6
Bulk beverage dispensing equipment, total	579	377,774	*	*	*	*	2,913	235,989	851	....	....	253	106,805	12
Soda fountain equipment, total	1,101	640,143	953	590,231	148	49,912	....	....	115	752	....	....	94,878	13
Creamer unit (cooler box)	381	405,113	*	*	*	*	....	....	....	243	....	....	59,697	6
Fountainette (bottling)	526	166,108	*	*	*	*	....	....	....	486	....	....	28,031	9
Backbar base (refrigerated) and salad sandwich unit	194	68,922	66	37,024	128	31,898	115	23	....	....	....	....	7,150	10
Low temperature freezing and dispensing equipment, total ...	4,076	1,358,435	*	*	*	*	†167	†48,208	6,503	1,425	85	....	466,500	42
Counter freezers and ice cream hardening cabinets	1,633	842,063	1,456	752,619	177	89,444	....	....	854	14	....	....	74,703	5
Ice cream dispensing cabinets, total	2,443	516,372	*	*	*	*	....	....	425	369	....	....	41,772	10
6 holes or less	2,089	409,163	*	*	*	*	....	....	270	301	....	....	28,377	8
8 to 12 holes	354	107,209	*	*	*	*	....	....	155	68	....	....	13,395	9
Frozen food cabinets, total	5,796	1,500,475	5,678	1,457,576	118	42,899	742	155,101	5,041	1,034	85	....	331,154	30
Dispensing cabinets, all sizes	230	91,653	230	91,653	....	....	....	....	104	106	....	....	16,943	4
Home freezers	3,741	868,402	3,623	825,503	118	42,899	70	14,875	3,570	674	....	....	220,385	17
Farm freezers	1,825	540,420	1,825	540,420	....	....	672	140,226	1,367	254	85	....	93,826	16
Drinking water coolers, total	42,099	5,386,920	41,798	5,346,305	301	40,615	2,133	137,069	15,289	18,296	....	8,973	945,068	17
Bottle type	255	27,465	255	27,465	....	....	....	....	500	6	....	....	15,500	4
Pressure type (with or without pre-cooler), total	41,844	5,359,455	41,543	5,318,840	301	40,615	†	†	14,789	18,290	....	8,973	929,568	17
Under 10 g.p.h.	17,456	2,195,188	*	*	*	*	....	....	2,826	16,011	....	7,870	372,171	17
11 to 20 g.p.h.	22,075	2,739,001	*	*	*	*	....	....	10,459	1,585	....	651	413,555	10
Over 20 g.p.h.	2,313	425,266	*	*	*	*	....	....	1,504	694	....	452	125,959	10

*Data for self-contained and remote units are not shown separately in order to avoid disclosure of operations of individual companies.
 †Enclosures for all types and sizes combined to avoid disclosure of operations of individual companies.
 ‡Includes blood plasma cabinets, instrument treating cabinets, rivet coolers, and cutting tool or spot welding coolers (coolant).
 No data were reported for cutting tool coolers (oil).
 †Includes mechanical types, complete units and enclosures for non-mechanical types, enclosures only.

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Locker Operator Teaches His Customers to Use Home Freezer Properly

ST. LOUIS—On the theory that misuse of home freezer is dangerous to the locker plant industry and all phases of food refrigeration, Clayton Appliance & Locker Co. in suburban Clayton here, is teaching its customers how to utilize home freezers most successfully.

E. Alch, owner of the 900-unit locker plant, believes that there should be close cooperation between the home freezer retailer and the commercial locker plant operator.

"There is no reason why the two should not co-operate harmoniously," he explained. "If on the other hand, the two interests work against each other, dissatisfaction is bound to result with one or the other, which will retard the advance of food refrigeration and cut off the sale of many home freezers which are now in prospect's minds."

Therefore, the Clayton Appliance & Locker Co., which incidentally will sell home freezers in its own showroom in the near future, is earnestly inviting locker renters to ask questions about home freezers.

"Whenever we find that one of our locker renters has a home freezer, or is contemplating the purchase of one, we take extreme pains to make her understand that each can do a specific job," Mr. Alch pointed out. "We have been disturbed to find that many housewives have attempted to freeze huge quantities of meat in ordinary home freezers, only to find partial spoilage and poor flavors resulting. One woman, for example, filled up an entire home freezer with cuts of meat and was dismayed to find that only the outer cuts, stored closest to the freezer wall, had become frozen."

"We make it plain to home freezer units that even the best unit can freeze only from 8 to 10 lbs. of meat in 24 hours, and that many false ideas have come into being of late. We tell the customer that the best method of using the home freezer is large-capacity zero storage for bulk amounts, and refrigeration of only a week's supply, or less, in home equipment."

"Naturally, we encourage the use of the commercial locker plant for storage of sides of beef, huge quantities of frozen foods, etc.—but the emphasis is more on small-scale refrigeration in the home within the limits of the equipment."

Mr. Alch believes that widespread use of home freezers will tend to build up the use of lockers, "because actually, the best possible refrigeration results from a combination of both."



Double display, double service for customers—extra sales, extra profits for the food dealer! Paley frozen food cabinets are open for business on top, moisture-sealed for better refrigeration within. Check these and other advantages of Paley cabinets before you buy!

* Brochure on request *

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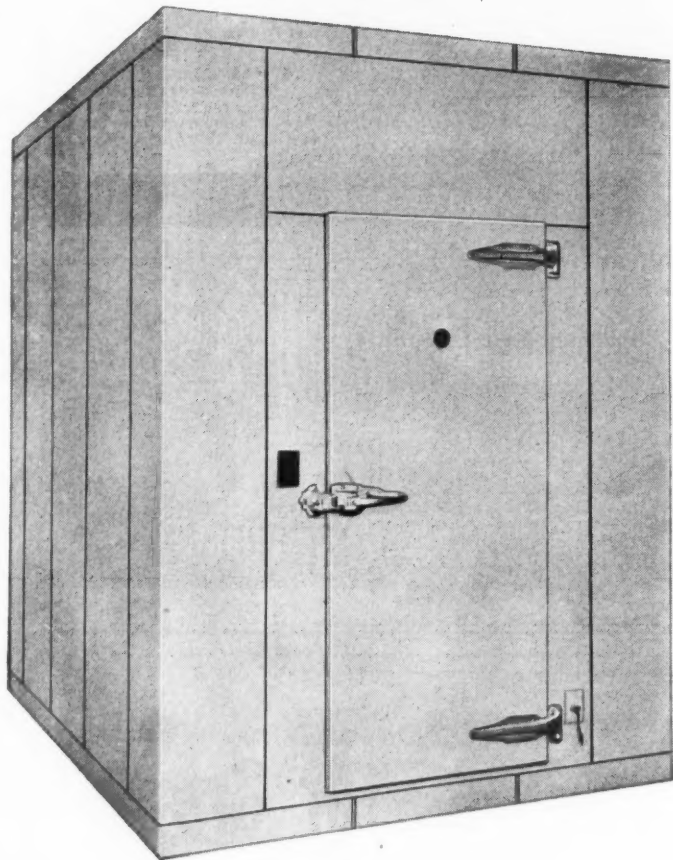
*See-Ability
 Sell-Ability!*

Package-laden shoppers buy more when frozen foods are easily accessible! No unwieldy lids, selection is simple, customers can see all the stock. Food dealers, too, can see that Paley engineered refrigeration combines solid construction with compelling, selling display.



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Table 4 (Cont.)—Shipments of Unitary Equipment and Purchases of Components, By Type of Product Shipped

Product	Shipments of Complete Units			Shipments of Enclosures Only			Purchases of Components					No. of Plants Reporting
	No.	Value (dollars)	No.	No.	Value (dollars)	No.	Con- densing Units No.	Com- pressor Units No.	Air Evap- orators No.	En- closures Only No.	Total Value (dollars)	
Laboratory and industrial freezing equipment†	191	111,047	*	*	*	*	183	8	....	....	18,871	7
Farm and dairy milk coolers, mechanical, total‡	20,306	2,833,603	18,791	2,700,539	1,515	133,064	14,041	25	....	2,250	852,066	26
Farm milk coolers (immersion type), total	19,191	2,753,760	18,277	2,655,026	914	98,734	13,971	25	....	2,250	847,793	19
Less than 4 cans	2,418	355,222	*	*	*	*	1,992	....	....	800	86,332	15
4 and 5 cans	7,322	876,038	*	*	*	*	5,046	15	....	550	245,190	17
6 and 7 cans	5,210	685,763	*	*	*	*	3,221	10	....	150	202,341	18
8 and 9 cans	2,975	499,562	*	*	*	*	2,550	....	....	188	196,651	16
10 and 11 cans	876	211,502	*	*	*	*	848	....	....	400	78,681	12
12 and 13 cans	225	36,994	*	*	*	*	150	....	....	25	15,175	11
14 cans and over....	165	68,679	*	*	*	*	164	....	....	137	23,423	7
Dairy milk coolers, tubular or surface..	1,115	79,843	*	*	*	*	70	....	....	....	4,272	7
Ice making machines, total	1,135	1,705,928	*	*	*	*	61	220	....	231	261,909	7
Self-contained air conditioning units, total..	10,515	7,761,702	10,515	7,761,702	....	....	....	....	....	....	....	11
Store type, total.....	9,850	7,589,313	9,850	7,589,313	....	....	....	....	....	....	....	10
2 and 3 tons	3,882	1,941,567	3,882	1,941,567	....	....	....	....	....	....	....	8
5 tons	4,613	3,646,223	4,613	3,646,223	....	....	....	....	....	....	....	7
7.5 tons	641	561,204	641	561,204	....	....	....	....	....	....	....	4
10 tons	367	641,458	367	641,458	....	....	....	....	....	....	....	4
15 tons	171	361,642	171	361,642	....	....	....	....	....	....	....	4
20 tons and over....	176	437,219	176	437,219	....	....	....	....	....	....	....	3
Room type	665	172,389	665	172,389	....	....	....	....	....	....	....	4
Absorption systems†	....	1,015,046	....	....	1,015,046	....	....	....	....	....	....	10

*Included in totals of Table 4 to avoid disclosure of operations of individual companies.

†Data for self-contained and remote units are not shown separately in order to avoid disclosure of operations of individual companies.

‡Data were requested separately for domestic and export shipments of the following items only: Air Conditioning units, store type—domestic shipments, 8,882 units, \$6,562,655; export shipments, 968 units, \$1,026,658. Air conditioning units, room type—domestic shipments 192 units, \$25,711; export shipments, 473 units, \$146,678. Absorption systems—domestic shipments, \$861,997; export shipments, \$153,049.

§Data for purchases of components for air conditioning units are not shown because such information was not requested for condensing units. Data compiled on compressors were, therefore, incomplete.

¶Preliminary figures for shipments of farm milk coolers were published in the "Facts for Industry" on Farm Machines and Equipment: 1945, Series M35A-05, released Sept. 3, 1946. The data on farm and dairy milk coolers, mechanical presented here are revised to include a few reports received after tabulation of the reports received after tabulation of the reports on Farm Machines and Equipment.

Nebraska Firm Uses Plane To Reach Remote Ranches For Equipment Servicing

ALLIANCE, Neb.—The Midwest Electric Co. here has inaugurated flying repair service on refrigerators and other electrical equipment at Western Nebraska ranches, and is believed by Manager R. M. Stolen to be the first electrical service firm to offer such service. He recently made arrangements with Lee Burton, Alliance flying service operator, to charter a plane for the work.

Mr. Stolen and Don Schoniger, service man for the firm, already have made a number of trips to remote ranches in the Nebraska Sandhill country to check and repair electrical appliances, windchargers, and individual light and power plants.

Airplane travel reduces time required for such service trips to a mere fraction of that formerly required by truck. An example of this time saving was a call made to the Curry Ranch, approximately 100 miles from Alliance over poor roads most of the way, to install a replacement part on home refrigeration equipment. Mr. Stolen and Mr. Schoniger left the Alliance airport at 10:50 a.m., went to the ranch, finished the work, and were back in Alliance by 12:20 p.m. The trip by truck would have "killed" a working day.

Mr. Schoniger is taking flying lessons so that the firm can handle its own service.

New York Refrigeration Jobbers Group Acts to Inaugurate 5-Day Week

NEW YORK CITY—Following up the decision of the Metropolitan Refrigeration Jobbers Association to keep their places of business closed on Saturdays throughout the year, members are notifying their customers by letter and stickers of the new rule.

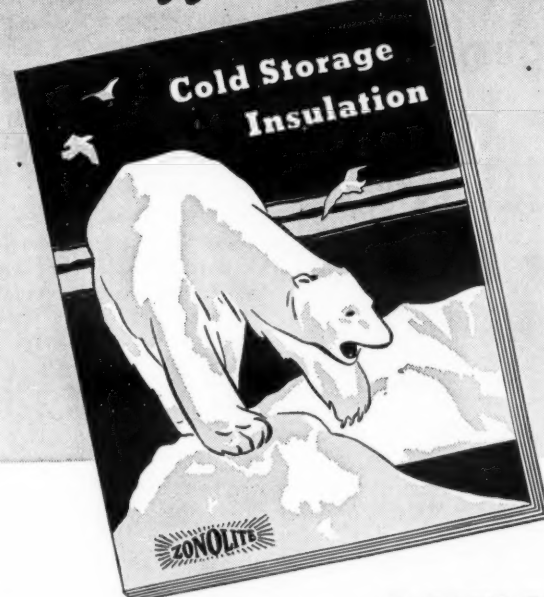
A typical letter, issued by Paramount Electrical Supply Co., Inc., reads as follows:

"In keeping with the trend towards the establishment of a five day week, we wish to advise that we shall be closed on Saturdays throughout the year effective immediately.

"This decision was reached at a meeting of the Metropolitan Refrigeration Jobbers Association, whose members unanimously approved the idea.

"We hope that you will endeavor to cooperate with us, and transact your business with us during the days from Monday through Friday."

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Table 5—Shipments of Components and Accessories for Unitary Equipment and Purchases of Components, By Type of Product Shipped: July-December 1945

Product	Production of Units Incorporated in Unitary Made in Same Plant	Shipments of Complete Units			Exports			Purchases of Complete Units and Components			No. of Plants Reporting
		Total No.	Value (dollars)	Domestic* No.	Value (dollars)	Value (dollars)	Value (dollars)	Complete Units No.	Compressor Units No.	Condensers No.	Total Value (dollars)
Total		40,331,825		38,091,571		2,240,254		1,261,209			63
Condensing Units, Total		222,901	19,963,353	213,399	18,681,021	9,502	1,282,332	6,853	7,326	15,291	936,812
Refrigerants, except ammonia, total		21,764	222,081	19,011,482	212,671	17,831,047	9,410	1,180,435	6,853	7,326	936,812
Air cooled, total	21,321	206,851	12,888,128	198,424	12,220,119	8,427	668,009	5,776	6,679	14,080	623,185
1/4 hp. and under†	15,145	82,196	3,068,080	79,469	2,933,685	2,727	134,395	3,378	844	2,384	148,519
1/2 hp.	3,126	61,792	3,330,552	59,590	3,197,190	2,202	133,362	985	2,225	3,989	103,798
3/4 hp.	1,614	32,988	2,389,267	31,489	2,270,392	1,499	118,875	309	1,409	3,419	68,649
1 hp.	777	14,348	1,572,876	13,373	1,463,149	975	109,727	432	1,501	1,852	103,803
1 1/2 hp.		7,336	981,838	6,831	912,812	505	69,026	290	283	821	52,692
2 hp.	1659	4,595	785,932	4,346	742,529	249	43,403	154	309	571	61,679
3 hp.		2,503	500,164	2,301	458,091	202	42,073	189	108	727	58,717
3 and 5 hp.†		1,093	259,419	1,025	242,271	68	17,148	89		317	25,328
Water cooled, total	443	15,230	6,123,354	14,247	5,610,928	983	512,426	1,077	647	1,211	313,627
1/4 hp. and under†		276	21,861	253	19,922	23	1,939	1	43	33	915
1/2 hp.	1359	1,122	119,789	1,098	117,684	24	2,105	29	102	227	5,216
3/4 hp.		1,487	185,374	1,449	180,571	38	4,803	90	169	96	14,385
1 hp.		1,779	260,441	1,713	250,976	66	9,465	99	105	149	16,577
1 1/2 hp.		1,418	266,563	1,375	259,241	43	7,322	136	119	86	28,414
2 hp.		2,374	553,485	2,010	464,836	364	88,649	77	81	180	19,891
3 hp.		2,799	763,610	2,688	733,564	111	30,046	424	1	92	103,424
5 hp.		2,073	1,047,720	1,813	728,310	260	319,410	166	8	222	57,183
7 1/2 hp.		651	674,630	641	669,092	10	5,538	35	13	39	25,272
10 hp.		409	346,349	381	328,066	28	18,283	17	1	28	11,994
15 hp.	184	256	258,129	249	251,931	7	6,198	2	2	18	2,778
20 hp.		142	302,209	139	299,471	3	2,738		2		760
25 hp.		171	272,826	169	271,146	2	1,680	1	1	6	3,725
30 hp.		29	50,223	29	50,223						4
40 hp.		97	225,051	95	218,163	2	6,888			20	8,000
50 hp. and 60 hp.†		40	120,588	38	113,226	2	7,362			7	4,347
75 hp. and over†		107	654,506	107	654,506					8	10,746
Ammonia refrigerants, recirculating, water cooled, total		820	951,871	728	849,974	92	101,897				8
Under 3 hp.		16	5,725	16	5,725						3
3 hp.		24	9,983	23	9,592	1	391				3
5 hp.		197	115,052	179	103,750	18	11,302				7
7 1/2 and 10 hp.†		279	232,252	246	206,555	33	25,697				8
15 hp.		137	166,363	118	144,329	19	22,034				6
20 hp.		96	133,456	81	111,835	15	21,621				5
25 hp. and over†		71	289,040	65	268,185	6	20,852				3

*Continental United States.

†Includes Canada, Mexico, and United States territories.

‡Combined to avoid disclosure of operations of individual companies.

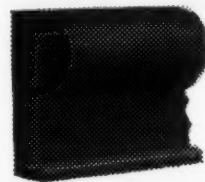
[Table 5 Continued on Pages 52-53.]

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30,000 Locker Plants By 1951 Predicts Locker Association Head

MILWAUKEE—In five years there will be 30,000 modern locker plants, more than three times the present number, C. G. Holme of Sebastopol, Calif., president of the National Association of Locker Plant Operators, predicted recently in an address at the annual convention of the Wisconsin Frozen Food Locker Association. "When locker plants insist on quality and standardization of products such as brand names," Mr. Holme said, "we will be able to market all kinds of foods—Washington cherries,

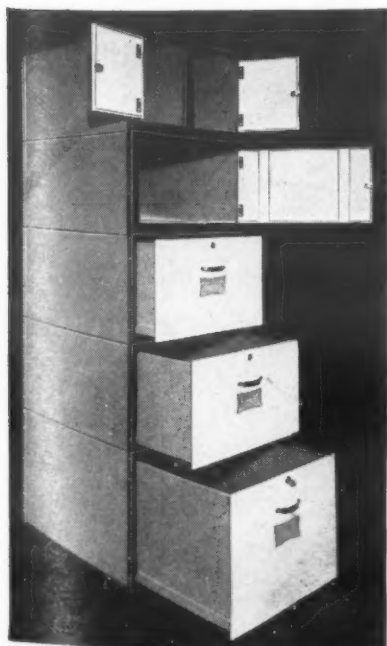
Florida fish, and New England seafood—along with that produced in our home territory."

L. E. Bothell of Monroe was elected president of the Wisconsin association. H. C. Cooper of Walworth was named vice president, and Alfred Cory of Fort Atkinson, secretary. Omar Gaston of Watertown, retiring president, was named a delegate to the national association, meeting in Des Moines, Iowa. Marvin Hewitt of Lindsay was elected a new director.

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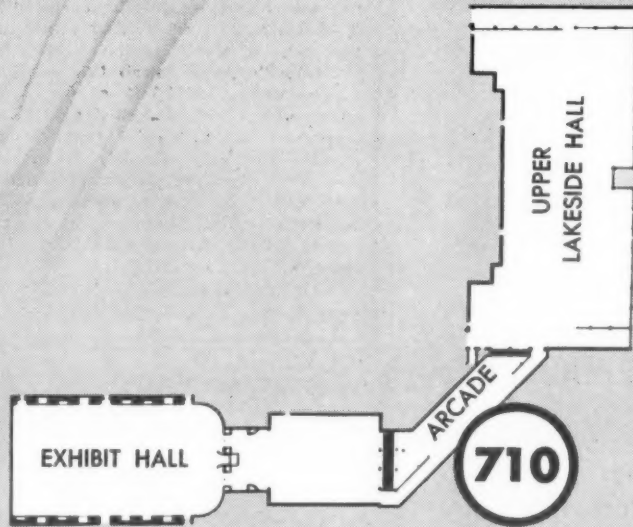
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Locker Plant Operators Can Cut Costs With Preventive Maintenance Plan

P. B. Reed Outlines What the Operator And Service Man Should Do Under Plan

By Paul B. Reed*

Preventive Maintenance, is a term that was coined by the Army, I believe, to cover a procedure that was found to result in decreased repair costs and fewer and less lengthy shut-downs of equipment. It is not a new procedure, for it is simply a fancy way of expressing the old adage "an ounce of prevention is worth a pound of cure."

Large installations of refrigerating machinery in packing houses, cold storage warehouses, and ice-making plants require enough day-to-day adjustment and repairs that the full-time or nearly full-time services of one or more skilled men are justified. These men are known as maintenance men.

At the other extreme is the household refrigerator or other small, automatic, individual cabinet and

sealed mechanism, that may require no readjustments, repairs, or maintenance for years. Such an installation would certainly not justify a maintenance program.

In between these two extremes are many installations that:

1. Consist of at least one or two systems of intermediate size that, although automatic in operation, do require some attention, although infrequent, such as oiling, defrosting, cleaning, and minor upkeep. Locker plants, central station type air conditioning systems, industrial processing equipment, and the like come in this category.

2. Consist of quite a number of small, automatic, individual cabinets with sealed, semi-sealed, and belt driven mechanisms. Apartment houses, army camps, ships, factories, large stores, operators of "fleets" of refrigerated vending cabinets and other users of multiple installations

come within this category. Some of these may even be able to keep one or more repair or maintenance men busy on a full-time basis.

The annual cost of repairs or very considerable losses due to spoilage of perishable products stored, can very well justify a moderate expense for a procedure that will reduce the repair costs and/or damage losses.

Most locker plants use refrigerating machines from about 1 or 2 hp. up to 20 or 25 hp. Repairs, especially those involving major replacements, may quite easily amount to \$100 or more with perhaps no assurance that there will be no repetition.

But, of perhaps even greater importance to the locker operator, is the possibility of a lengthy shut-down during the repair period, due perhaps to unavailability of repair parts or prior claims to the time of the service engineer. Losses from spoilage of the frozen foods stored in the plant can assume the proportions of a catastrophe.

The locker operator may carry insurance that will indemnify him and his customers for the declared value of the stored products, but it cannot replace scarce meats nor irreplaceable wild game, nor can it compensate for the irretrievable loss of prestige and customer good-will.

Preventive Maintenance Is Worth Paying For

Any locker operator will agree that any procedure that is effective in reducing repair costs and in lessening the possibilities of product losses would be worth while and worth a moderate expenditure of money. Incidentally, it will be noted here, that the cost of Preventive Maintenance is an expense of operation and as such enjoys a favored place as a deduction on the income tax return.

Just what is Preventive Maintenance? Briefly, it consists of regular inspections that find little defects before they get large, so that they can be repaired easily, quickly, inexpensively, and without a major shut-down. It consists also of oiling, cleaning, and readjusting that will prevent excessive wear and the consequent expensive repairs.

In practice, it consists usually of a contract or agreement with a reliable service company or individual to visit the plant every two weeks or every month, as may be determined, and carefully inspect the equipment, check temperatures and pressures, oil all bearings, conveyors, and other

frictional parts, clean condensers, and perhaps defrost the evaporators if it seems desirable for the service engineer to do this. (There is an advantage in his doing the defrosting for troubles sometimes show up when the equipment is started up just after a defrosting, and the service engineer, being there, can immediately make the necessary readjustment or repair.)

These Preventive Maintenance contracts are usually on a yearly basis with flat-rate fees to cover the labor and transportation for the inspection, oiling, readjustment, and cleaning of the equipment, but not including parts, materials, or supplies. Neither do they cover the labor, material, parts, nor transportation for any repairs that may be found necessary. Some contracts do include the labor for specified minor repairs such as belt tightening, realigning, and replacement or repair of minor leaks.

Refrigeration Check List

The following items would be on a typical check-list of the service engineer on a Preventive Maintenance inspection:

1. Put on gauges and check and record discharge and suction pressures.
2. Check and record temperatures in the various rooms or refrigerators.
3. Check and record temperature of the machine room.
4. Check and record temperatures of the water to and from the condensers.
5. Check the amount of refrigerant in the system and if low, test the entire system to locate the leak or leaks from which the refrigerant was lost.
6. Check tension of belts and

alignment of pulleys.

7. Inspect all evaporators for operation. If one is not fully active or all frosted, the cause must be determined and the necessary repair made. Check blower type evaporators for accumulation of frost or ice in the fins that prevents or retards air passage.

8. Oil bearings of motors, fans, pumps, idler pulleys, conveyors, and similar apparatus.

9. Clean sediment traps, check spray heads, and eliminators of evaporative condensers, clean and repaint rusty water and drain pipes, tighten valve glands, or repack if required.

10. Inspect and clean ductwork and wire-brush and repaint if needed.

11. Check door gaskets and hardware for tightness and free operation. Oil hinges and latches.

12. Clean dust and lint from air-cooled condensers and check free air supply of evaporative condensers.

If mutually agreeable arrangements can be made, the locker operator may find it advantageous to have the refrigeration service Preventive Maintenance program include the other mechanical equipment used in the plant, such as power saws, meat grinders, and slicing machines, unless a separate preventive maintenance arrangement may be made with dealers or other organizations available for repair service on these accessories.

Some few locker operators may have sufficient knowledge and experience with refrigerating equipment that they may feel capable of doing the Preventive Maintenance themselves. Nevertheless, they will probably find it advisable to turn this

(Concluded on next page)



THERMOBANK EVAPORATOR IN FREEZER ROOM OF A PACKING PLANT

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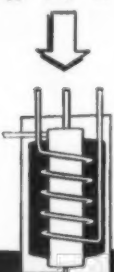
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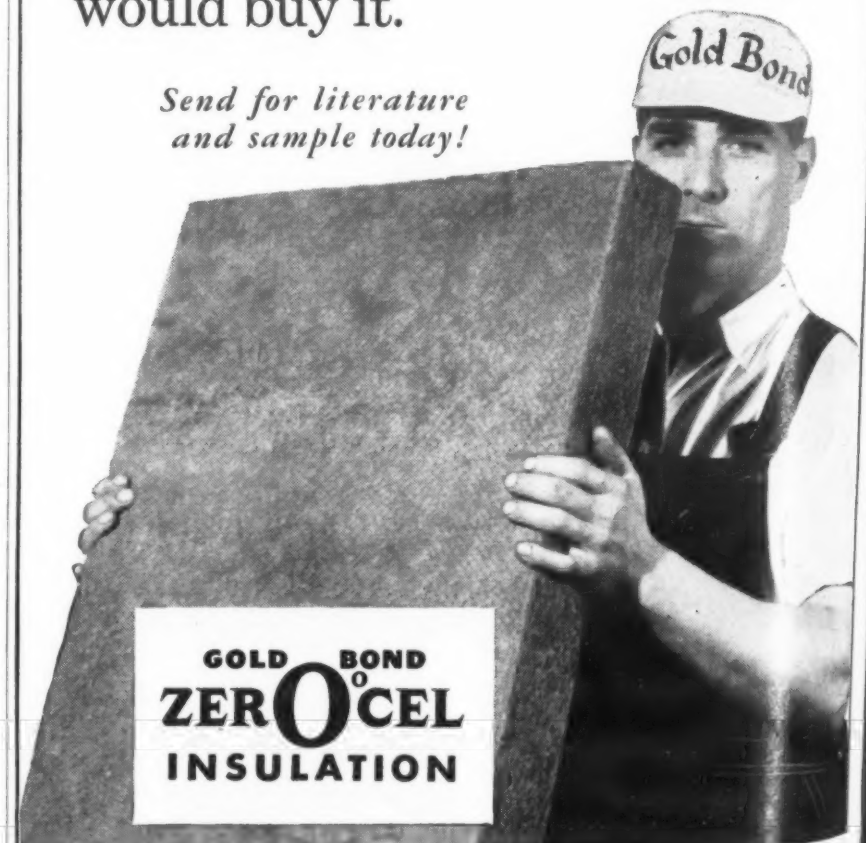
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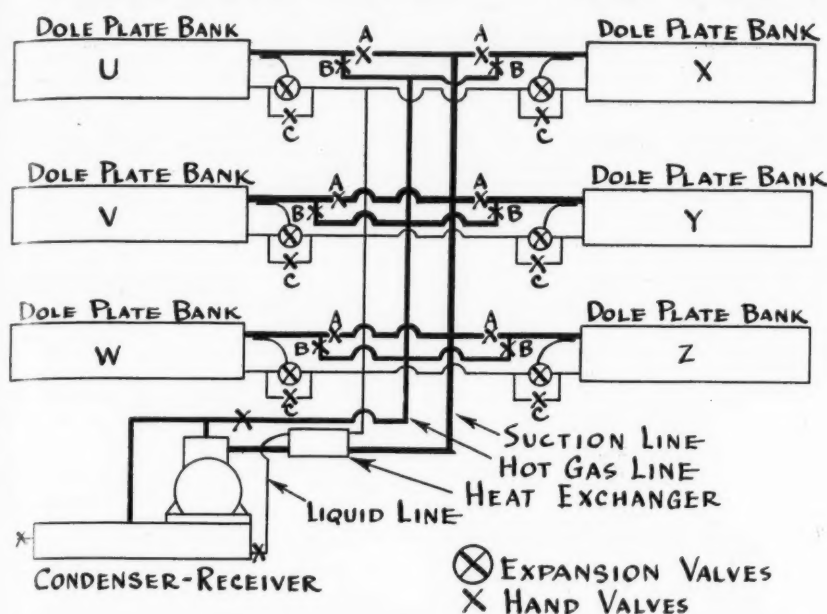
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How Operators Can Help Keep System Efficient

(Concluded from preceding page)

work over to the refrigeration specialist who does this type of work all the time and can make the inspection quicker and more effectively.

Moreover, the locker operator will be inclined to pass over the inspection if it comes at a time when he is busy with other work and the probabilities are that it will not be done at all.

There is a place for the locker operator in the Preventive Maintenance Program, however. He can watch the day-to-day operation and see that nothing is done that will tend to cause uneconomical operation or to actually cause damage that may result in costly repairs or shut-downs.

Suggestions for Operator

Even Preventive Maintenance cannot anticipate nor prevent some of the things that the operator can prevent or at least correct at once. Some of these things are:

1. Keep the doors closed. Some of the larger doors are the self-closing type, but smaller ones may be left open longer than is necessary. Much warm, moist air may be let into the cold spaces. The heat will cause the temperature to rise in the refrigerated rooms or cabinets and the moisture will add frost on the evaporators or cause condensation, frost and ice on lockers, foods, or equipment.

2. Prevent obstructions to air circulation in the rooms or cabinets. Air passages must be kept open. Boxes and cartons may be piled in passages, food may be packed solid or paper may be put on shelves; all of which obstruct the circulation of air which is necessary; for the circulating air carries the refrigeration to the points where it is needed.

3. Prevent obstructions to air circulation around the machines. The machines must have free air circulation to enable them to keep cool. In the case of air-cooled machines, all of the heat from the cold rooms or cabinets is carried by the refrigerant down to the refrigerating machine, and thrown off by the air-cooled condenser into the room or other space around the machine. If that space is too small or air circulation into and out of it obstructed, the machine will get hot and as a result its efficiency and ability to remove the heat

from the rooms will be reduced and the cost of operation will go up.

In the case of the water-cooled machine, the heat from the rooms is transferred to the water in the water-cooled condenser so less circulation of air around the machine is required than for air-cooled machines. But some is still needed to carry away the heat from the motor, and since water-cooled machines are usually in the larger sizes with good-sized motors the amount of heat from the motors is considerable. Even a water-cooled machine must not be crowded into too small a space.

4. See that cooked foods are allowed to cool down to room temperature before they are put into chill rooms. Also see that foods are cooled down to at least around 40° before they are put into the freezer. Refrigeration costs more to produce in the low temperatures than at chill room temperatures, so do as much of your cooling as you can at the higher temperatures, or in the case of hot foods, without refrigeration at all.

5. Keep the refrigerated rooms and cabinets clean. Wash down at least each week the interior walls, shelves, meat rails, and the like in the spaces that are held above freezing. Other equipment such as tables, floors, cutting, and grinding equipment should be washed each day. One tablespoonful of baking soda in each gallon of the washing water or some good commercial preparation will tend to keep things sweet.

Keep the refrigeration equipment clean, too. Your refrigeration Preventive Maintenance man should wipe off the machines, motors, condensers, fans, etc., and you should avoid getting your hands around moving or electrically "hot" parts. That is his job but you can see that the floors and walls around the equipment are kept clean and dry.

6. Do not tamper with, nor allow any of your employees to tamper with, nor attempt to repair or adjust any of the refrigeration equipment or controls.

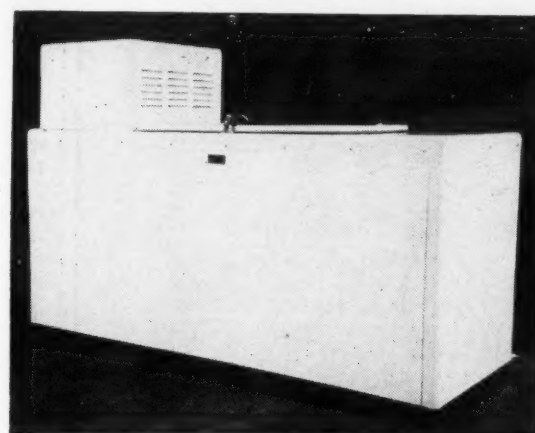
If fuses blow, you may replace them with fuses of the SAME TYPE AND RATING. Never put in a larger fuse, nor a penny or other "short."

Call your Refrigeration Service Engineer at once in case of equipment failure, abnormal temperature rises, unusual noises or vibrations, or other unnatural conditions of operation.

Make arrangements for service with a capable and reliable service agency, and remember, the best is the cheapest in the long run.

NEW DEW FREEZE

MODEL "20"



"MEASURES UP"

For Home, Farm and INSTITUTIONS

Dew Freeze THE IDEAL FROZEN FOOD CABINET

20 Cu. Ft. CAPACITY (APPROXIMATE)

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DEW FREEZE units are designed to meet your customers' suggestions for a large roomy cabinet with sharp freeze qualities throughout the entire box.

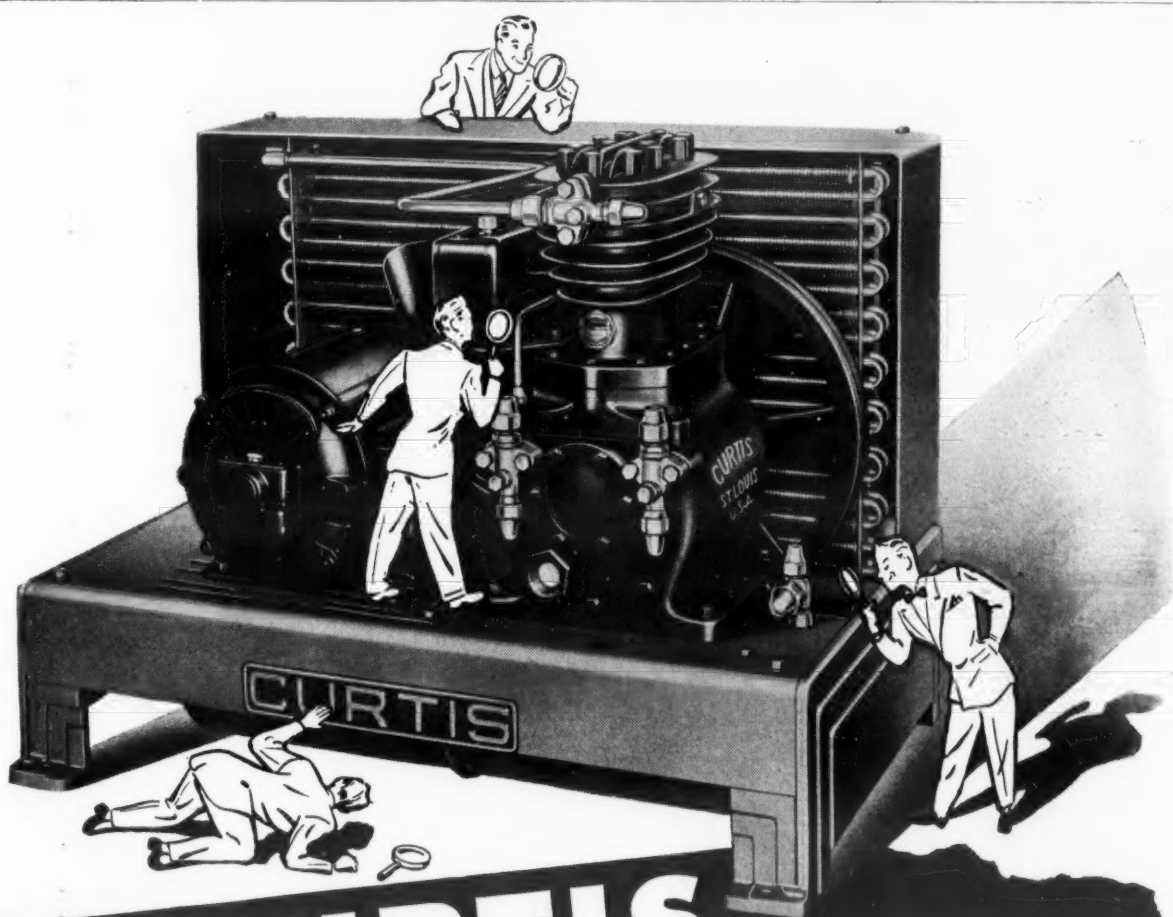
Streamlined—sturdy—all metal construction is finished in all baked enamel. Hardware smartly appointed to match streamlined construction.

Model "20" is 75" long, 34" high and 27½" wide. Heavily insulated, equipped with ½ h.p. unit and Yoder full flood plates. Also made in 10 cu. ft. capacity.

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2. A wide range of air and water-cooled units.
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5. Finest materials—precision construction throughout.
6. Slow speed—long life—low maintenance.

Write for full information on all the advantages of CURTIS equipment for practically any refrigeration or air-conditioning requirement.

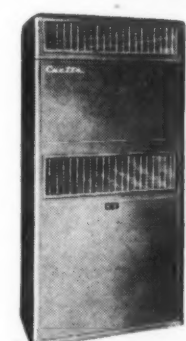
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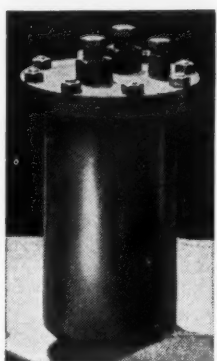
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The ALL-INDUSTRY REFRIGERATION and
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BOSTON TECHNICAL INSTITUTE, SCHOOL OF REFRIGERATION
4707 Euclid Avenue Cleveland 3, Ohio

Table 5 (Cont.)—Shipments of Components and Accessories for Unitary Equipment and Purchase of Components, by Type of Product Shipped, July-December 1945

Product	Shipments of Complete Units		Exports		Purchases of Complete Units		No. of Plants Reporting
	No.	Value (dollars)	No.	Value (dollars)	No.	Value (dollars)	
Compressors and compressor units, total	55,464	5,880,390	54,398	5,411,859	1,066	468,531	21
Refrigerants except ammonia, total	53,476	2,618,817	52,617	2,556,069	859	62,748	18
1/2 hp. and under†	42,525	595,724	42,002	586,407	523	9,317	12
3/4 hp.	3,412	104,410	3,336	101,935	76	2,475	9
1 hp.	913	40,177	881	39,129	32	1,048	12
1 1/2 hp.	165	12,474	155	11,945	10	529	10
2 hp.	2,874	145,830	2,829	143,118	45	2,712	10
3 hp.	1,601	142,284	1,486	133,329	115	8,955	13
5 hp.	359	98,483	344	94,547	15	3,936	13
7 1/2 hp.	130	55,074	129	54,736	1	338	7
10 hp.	218	143,573	206	136,991	12	6,582	9
15 hp.	519	362,591	504	353,961	15	8,630	10
20 hp.	241	187,071	237	184,412	4	2,659	6
25 hp.	108	96,050	108	96,050	...	...	6
30 hp.	54	54,805	54	54,805	...	...	6
40 hp.	165	218,778	165	218,778	...	...	6
50 hp.	126	195,519	119	186,238	7	9,281	6
60 hp.	21	39,936	21	39,936	...	...	5
75 hp. and over†	45	126,038	41	119,752	4	6,286	3
Ammonia refrigerants, total	1,988	3,261,573	1,781	2,855,790	207	405,783	11
3 hp. and under†	57	14,891	55	14,408	2	484	4
5 hp.	82	26,333	77	24,905	5	1,328	5
7 1/2 hp.	104	51,801	95	48,395	9	3,498	7
10 hp.	92	49,421	78	42,422	14	6,999	8
15 hp.	273	204,006	248	183,535	25	20,168	6
20 hp.	203	172,383	188	160,314	15	12,069	7
25 hp.	171	185,127	156	169,360	15	15,767	5
30 hp.	205	268,665	186	249,692	19	21,973	6
40 hp.	116	198,731	102	176,544	14	22,187	7
50 hp.	197	260,594	180	228,131	17	28,463	5
60 hp.	93	201,444	72	156,335	21	45,106	8
75 hp.	132	366,461	112	320,439	20	46,022	1
100 hp.	177	748,930	164	708,619	13	39,311	7
101 to 200 hp.	49	188,315	41	151,925	8	36,390	5
201 to 300 hp.	22	133,318	17	95,490	5	34,828	4
301 hp. and over†	15	191,252	10	120,062	5	71,190	3
Centrifugal refrigeration machines (water and brine chilling), total	151	2,292,873	147	2,231,193	4	61,680	5
Other heat exchanger equipment, total	...	4,351,211	...	4,199,851	...	151,360	33
Condensers, shell and tube	...	595,251	...	564,962	...	30,289	24
Condensers, shell and coil	...	166,697	...	149,552	...	17,145	6
Liquid coolers, shell and tube	...	354,280	...	307,891	...	46,389	8
Liquid coolers, shell and coil	...	89,076	...	88,129	...	947	5

*Continental United States.

†Includes Canada, Mexico, and United States territories.

‡Combined to avoid disclosure of operations of individual companies.

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Your Customer's COMFORT is insured when you install ATI Air Conditioning Package Units... No chills, No feverish heat... just the refreshing coolness of controlled air in offices and stores.

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Nebraska School Tells Farmers Who Plan To Build Own Freezer -- 'Don't'

LINCOLN, Neb.—Farm families who are considering the possibilities of constructing freezer lockers at home instead of purchasing commercially made models of renting space in frozen food locker plants, should proceed with caution, according to the Agricultural Engineering Department of the State Agricultural college here.

While plans and specifications for home-made lockers are available from a number of educational institutions, it takes more than ordinary knowledge to build a satisfactory system, the institution's engineers warned.

Farmers were advised that as a general rule, they will come closer to

getting what they want in size and performance from a commercial unit even if, at the present time, costs are higher. Families making or purchasing home freezers are likely to be disappointed if they consider the matter solely from the standpoint of money-saving, it was also stated.

A family of four was cited as an example. Should this family decide to buy an 18-ft. home freezer, it will cost approximately \$350 and may be figured to last 15 years. Annual operating costs, including depreciation, interest, operation, and repair will total about \$63.58, not including the processing, packaging, or freezing of the foods, research shows.

Cooling Equipment Aid To Plastic Production

ERIE, Pa.—Refrigeration equipment which furnished cooled water for injection molding machines was used during the war by the Erie Resistor Corp. here to prevent excessive shrinkage of molded plastic parts after they were removed from the mold.

In this way the equipment assisted in the production of plastic items.

Refrigeration May Step Up Silk Production

RIO DE JANEIRO, Brazil—Ten crops of silkworm cocoons per day may be produced by the proper application of cool air, it was shown in tests conducted with refrigerators in experiment stations here.

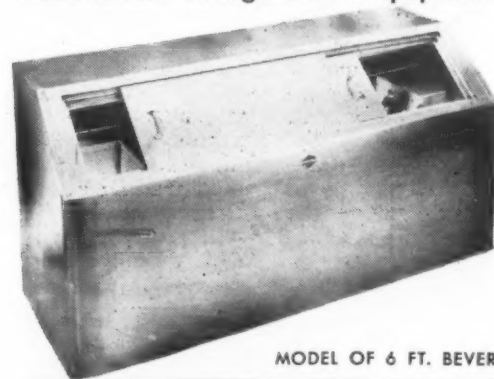
Silkworms, it is said, seem to thrive better in refrigerators where their life cycle is speeded up considerably.

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MANUFACTURERS OF COMMERCIAL REFRIGERATION EQUIPMENT SINCE 1904

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A new line of standardized and custom built commercial refrigeration equipment.



MODEL OF 6 FT. BEVERAGE BOX

SPEEDY DELIVERIES!
TURDY CONSTRUCTION!
STANDARD SIZES!
STAINLESS STEEL, BAKED
ENAMEL, DUCCO & WOOD FINISHES!

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STERLING ENGINEERING & MACHINERY CO.
1012 MADISON ST., OAK PARK, ILL.

Table 5 (Cont.)—Shipments of Components and Accessories for Unitary Equipment and Purchases of Components, By Type of Product Shipped: July-December 1945

Product	Shipments of Complete Units				Purchases of Complete Units			
	No.	Value (dollars)	No.	Value (dollars)	No.	Value (dollars)	No.	Value (dollars)
Heat exchanger equipment, total	12,195,209	11,767,498	427,711	291,968	46			
Evaporative condensers, total...	1,775	1,758,386	1,717	1,711,193	58	47,193	34	48,560
Less than 3 tons	48	8,719	48	8,719				
3 to 5 tons	177	48,907	161	44,907	16	4,000		
5.1 to 7.5 tons	211	95,341	199	89,298	12	6,043	3	1,033
7.6 to 10 tons	115	70,733	114	69,933	1	800	1	750
10.1 to 15 tons	251	169,961	237	162,135	14	7,826	3	1,891
15.1 to 20 tons	106	83,715	104	82,515	2	1,200	1	900
20.1 to 30 tons	290	275,564	287	272,756	3	2,808	4	4,357
30.1 to 50 tons	342	444,920	339	440,918	3	4,002	5	6,699
50.1 to 100 tons	209	460,514	203	443,505	6	17,009	17	32,930
Over 100 tons	26	100,012	25	96,507	1	3,505		
Unit coolers, total	51,647	6,085,612	49,666	5,856,454	1,981	229,158	659	150,303
Air conditioning (remote type), total	2,133	1,162,024	2,069	1,130,296	64	31,728	41	7,928
Less than 3 tons	143	35,336	134	30,103	9	5,233	32	4,920
3.1 to 5 tons	214	68,958	203	65,987	11	2,971	9	3,008
5.1 to 10 tons	400	149,979	388	146,064	12	3,915		
10.1 to 25 tons	1,040	569,096	1,018	558,174	22	10,922		
25.1 to 50 tons	336	338,655	326	329,968	10	8,687		
Over 50 tons								
Refrigeration, total	49,514	4,923,588	47,597	4,726,158	1,917	197,430	618	142,375
Ceiling and wall mounted, total	47,656	3,458,080	45,871	3,336,309	1,785	121,771	554	95,049
1,000 B.t.u./hp. and under	10,745	688,896	10,712	687,756	33	1,140	9	360
1,001 to 2,000 B.t.u./hr.	7,421	656,196	7,309	652,232	112	3,964	27	659
2,001 to 4,000 B.t.u./hr.	7,306	297,942	6,938	281,566	368	16,376	172	10,208
4,001 to 6,000 B.t.u./hr.	5,821	296,479	5,586	282,563	235	13,916	90	7,485
6,001 to 8,000 B.t.u./hr.	4,024	263,183	3,810	248,892	214	14,291	65	5,572
8,001 to 12,000 B.t.u./hr.	5,421	387,723	5,006	357,057	415	30,666	93	11,123
12,001 to 18,000 B.t.u./hr.	4,899	511,071	4,561	479,897	338	31,174	40	8,945
Over 18,000 B.t.u./hr.	2,019	356,590	1,949	346,346	70	10,244	58	50,697
Floor mounted—dry type, total	1,346	893,775	1,237	836,115	109	57,660	53	34,145
Under 2 tons	69	23,831	69	23,831				
2 to 5 tons	523	202,894	487	195,592	36	7,302	13	6,337
5.1 to 7.5 tons	380	281,766	345	261,953	35	19,813	22	9,646
7.6 to 10 tons	160	149,065	159	146,778	1	2,287	9	6,178
10.1 to 15 tons	161	146,810	127	121,398	34	25,412	5	7,247
Over 15 tons	53	89,409	50	86,563	3	2,846	4	4,737
Floor mounted—spray type, total	512	471,733	489	553,734	23	17,999	11	13,181
5 tons and under	37	24,343	31	20,422	6	3,921		
5.1 to 7.5 tons	188	213,486	185	211,746	3	1,740		
7.6 to 10 tons	42	38,415	37	34,298	5	4,117	5	3,558
10.1 to 15 tons	117	130,062	112	126,024	5	4,038	1	782
Over 15 tons	128	165,427	124	161,244	4	4,183	5	7,943
Fin coils—heating, other than forced air units	1,442,301	1,441,530			771			
Fin coils—cooling, other than forced air units	1,561,663	1,537,862			23,801			
Evaporators, plate type	141,943	109,925			32,018		523	74,400

*Continental United States.

†Includes Canada, Mexico, and United States territories.

‡Combined to avoid disclosure of operations of individual companies.

WAA Offers Surplus Industrial Chemicals, Gas Cylinders Valued at \$35,000,000 for Sale In National Campaign

WASHINGTON, D. C. — Surplus industrial chemicals and chemical handling equipment which the government bought for war purposes at a cost of \$35,000,000, are being offered in a national sales campaign, the War Assets Administration has announced.

Included among the materials offered for immediate sale at fixed prices are all types of gas cylinders, representing low pressure, high pres-

sure, carbon dioxide, propane, nitrogen, acetylene, and oxygen; sealing compounds, welding fluxes, and solvents.

Practically all of WAA's 33 regional offices have quantities of these chemicals, the agency says. The inter-regional sales division in each region is prepared to locate the material in any of the regions, it adds.

All sales are subject to priority regulations.

MOTORS

HERE'S A NEW ONE!

- Slower Speeds
- Lower Current Costs
- Quieter Operation
- Smaller Size

Here are four big advantages built into the new Alliance Powr-Pakt fan motors. Results are longer life—less repair—smoother performance. This new Alliance shaded pole fan motor reflects advanced engineering! Mass-produced at low cost! Write.

Other Alliance Powr-Pakt Motors in shaded pole induction and split-phase reversible resistor types rated from less than 1-400th h.p. on up to 1-20th h.p. for powering valves, switches, controls, driving turntables, fans, record changers and automatic devices.

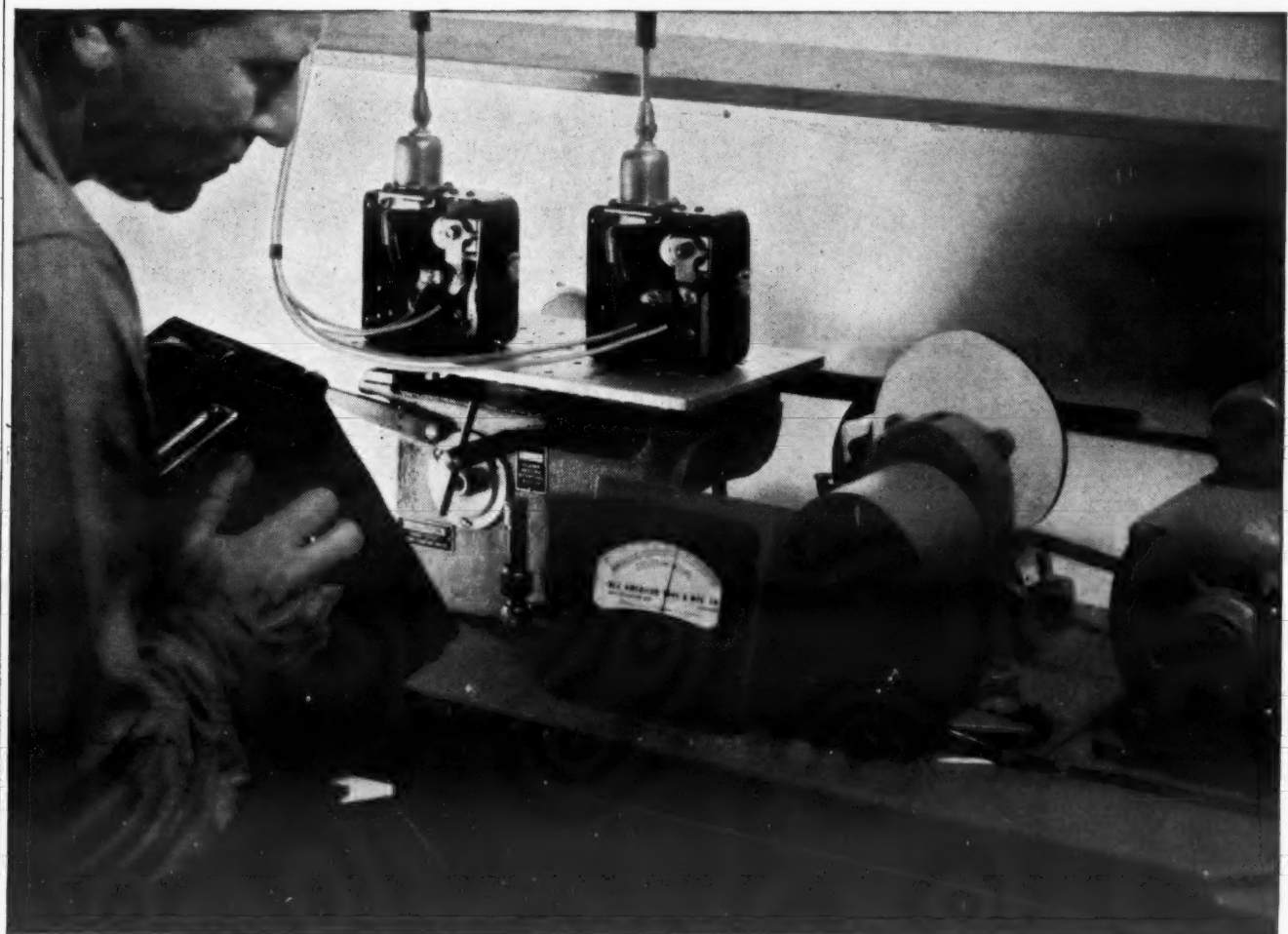
Model A is basically a motor for operating fan blades. It is also excellent for other intermittent duty jobs. Wherever it is necessary to maintain a constant circulation of air, for heating, ventilating, refrigeration or oven engineering, this Alliance Powr-Pakt unit, operating at the slower controlled speeds of some 1050 r.p.m. down to 500 r.p.m. offers excellent advantages. Rated at approximately 1/30th h.p.

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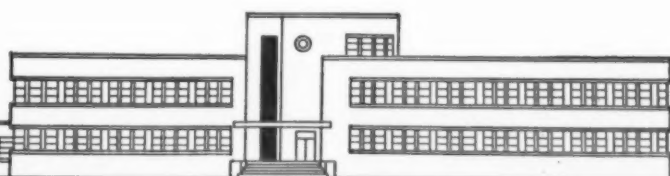
And our inspectors and Quality Control Engineers have it to a great degree! For, that's why they're on our payroll... to find fault. It's their job to see that every PENN Control meets rigid specifications... to see that you get the best refrigeration controls that can be built. This engineer, for instance, guards you against the destructive vibration that burns contacts, reduces control life and damages relays and contactors. Here, by means of a stroboscope he analyzes the contact mechanism action of these two refrigeration controls on a vibrator machine.

In PENN'S modern factory you'll find all our engineers and inspectors equally skilled and careful. Better and more dependable controls are the result... yet you pay no premium for this extra value. Ask your jobber for PENN Controls. You'll find the exact type you need in PENN'S complete line of refrigeration controls for temperature and pressure applications.

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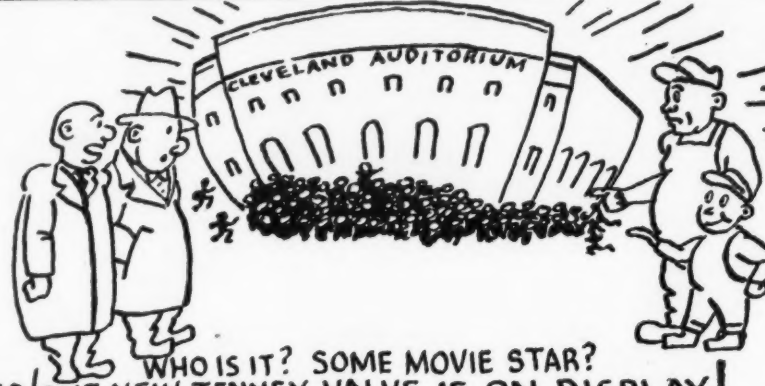
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FOR HEATING, REFRIGERATION, AIR CONDITIONING, ENGINES, PUMPS AND AIR COMPRESSORS



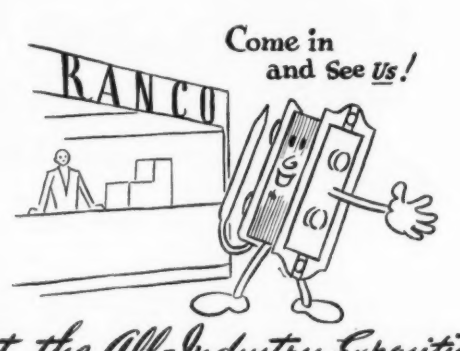
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26 Avenue B • Newark 5, N. J. Telephone: BIGELOW 8-3905
Manufacturers of Automatic Temperature, Humidity and Pressure Control Equipment

Two Food Warehouses Get CPA Approval For New Construction

WASHINGTON, D. C.—Among 27 applications for non-housing construction approved by CPA during the month of September were two for food warehouses to cost \$57,300.

The agency reported it approved an application from Abe Levitt for construction of a \$43,500 cold storage building in Atlanta, because it will provide for increased food preservation. Erection of a \$13,800 food warehouse at Mineola, N. Y., by Otto Esemann was authorized on the basis of hardship and use of a minimum amount of critically short materials, according to CPA.



Have fun, friends -- we intend to -- but stop in and see us in between times.

We will be in booths 324 - 326 during the three-day show in Cleveland Public Auditorium.

Ranco Inc. COLUMBUS 1, OHIO

at the All-Industry Exposition in Cleveland

4

EXTRA VALUES

at no extra cost...

Anaconda CUP SEAL

1. **Clean, Bright, Dehydrated Interior** maintained by the cup seal.
2. **Waste Minimized** because end cut off is no longer than diameter of tube.
3. **No Sharp Edges** at the end of tube to dent or mar the coil.
4. **Easily Fed** through smaller openings than is possible with crimped or flattened ends.

TYPICAL of the extra value engineered into *Anaconda* Refrigeration Tubes is this exclusive Cup Seal®. A small item, to be sure! Yet it protects the interior of the tube, reduces waste, minimizes danger of damage to the coil, and facilitates installation.

Anaconda Refrigeration Tubes... made to A.S.T.M. specifications B 68-43... are 99.9% pure copper, specially deoxidized to increase their corrosion resistance. As you'd expect, they are uniformly soft, easy to bend and can be readily flared without cracking.

Ask your jobber about Anaconda Copper Refrigeration Tubes. Available in standard sizes up to and including 3/4" O.D., stocked in 25, 50 and 100 foot coils, or longer lengths on special order.

*Patent Applied For



Anaconda Refrigeration Tubes

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AMERICAN VIBRATION ELIMINATORS



American Vibration Eliminators exclude vibration and compensate for thermal expansion in pipe systems. Pressure-tight, safe for conveying costly gases or liquids, such as refrigerants, American Vibration Eliminators are easily installed. For catalog, write American Metal Hose Branch, Waterbury 88, Connecticut.

Servicing Truck Refrigeration Units

Editor's Note: This is another in a series of articles giving detailed information on the servicing of truck refrigeration units, a field of growing importance for the refrigeration repairman. This data pertains specifically to the reverse-cycle "Trail-Aire" unit produced by Advance Mfg., Inc., of Detroit.

Instalment No. 5

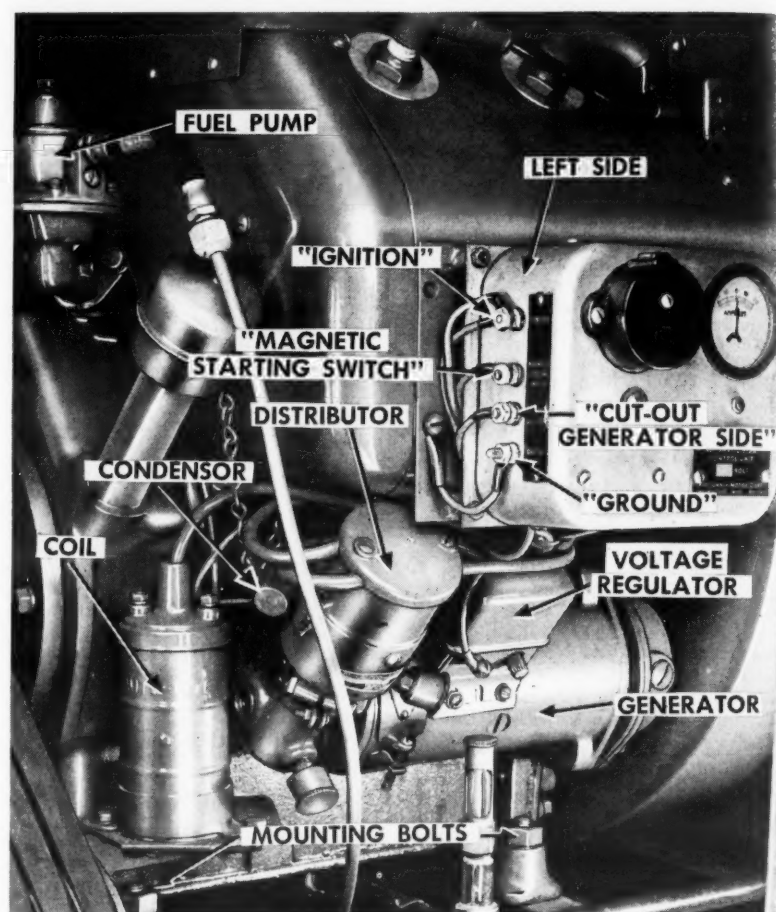


Fig. 10 shows details of the electrical system, including the automatic start control box, of the Trail-Aire truck refrigeration unit.

Failure of Electrical System

If inspection shows that cause of engine trouble exists in the ignition system, the following steps should be taken to determine the exact cause of failure:

1. Check the ignition spark by holding a spark plug wire about 1/4 in. from the cylinder head while the engine is cranked. If there is no spark it will be due to faulty distributor points, coil, or an open circuit.
2. The distributor points can be inspected by removing the cover. Check for pitted points and reset the gap to .015 in.
3. There is no repair, other than replacement, for a faulty coil or condenser.
4. Check complete wiring circuit to the engine automatic start control box for an open or loose connection.

Engine Automatic Start Control Box

When the thermostat makes contact and the hand control switch is on, a circuit from the battery (at terminal marked "Battery") is completed through the ammeter and circuit breaker contacts to one terminal marked "Control Switch" through the control circuit (high pressure cut-out switch and thermostat switch) to the other "Control Switch" terminal.

One branch of the circuit goes through the normally closed relay contacts, then through the cranking time limit switch to the terminal

marked "Magnetic Start Switch" and to the heater element of the circuit breaker, as well as to the red pilot light. The other branch of the circuit goes to the terminal marked "Ignition."

The "Ignition" terminal energizes the holding coil of the manifold valve and the ignition system, in addition to the automatic choke. The "Magnetic Start Switch" terminal energizes the pulling coil of the manifold valve and the operating coil of the solenoid starting switch. Thus the manifold valve is closed and the starter cranks the engine.

As soon as the engine starts, the generator feeds current back to the "cut-out generator," then to relay coil to "ground." The relay is now opened and this opens the circuit through the cranking time switch to the "Magnetic Start Switch," as well as the heater coil of the circuit breaker and the pilot light to separate grounds. Then the starter stops cranking and the pulling coil of the manifold valve is de-energized. The "cut-out battery side" also feeds current through the ammeter to battery while the engine is operating.

If the engine starts, but the generator fails to function, the relay coil will not be energized and thus will not open. In such cases, the starter is still energized, but the Bendix drive will slip as the engine operates. Further, the heater coil of the cranking time limit switch and the circuit breaker as well as the

(Continued on next page)

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Other Components of Electrical System

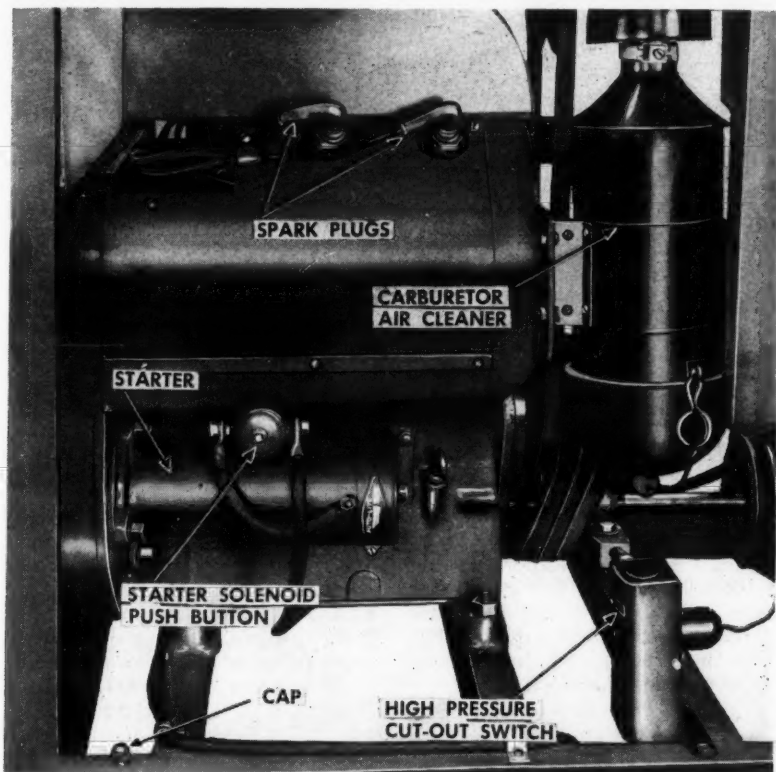


Fig. 11 shows location of starter solenoid push button.

Servicing Truck Units (Cont.)

(Continued from preceding page)
pilot light are still energized to separate grounds.

The cranking time limit switch will, under this condition, stop and start the engine until the circuit breaker opens, thus shutting off the power supply from the battery.

Testing Automatic Control Circuit

1. Make sure the controls are set for operation.

2. Check the thermostat setting to be certain that the engine should be running. The temperature inside the trailer must be higher than the thermostat setting for cooling, or lower than the thermostat setting for heating, before the engine will start.

3. If the engine will not start, make sure that the circuit breaker is not open. Push in the circuit breaker reset button to see if the engine will crank. If the engine cranks but does not start, the fault is in the engine ignition system or the gasoline supply.

4. If the engine will not crank automatically after pressing the reset button, it is possible to localize the trouble in the following manner:

A. Use a screwdriver to short across the two terminals marked "Control Switch" on the automatic start control box. These terminals are the middle two on the right side of the box. If the engine starts, one of the control switches is open.

B. Short across the terminals in each control switch to see which switch is open. If either the thermostat or the manual control switch is

defective, and it is necessary for the machine to operate, attach the correct two terminals at the defective switch together and proceed.

Caution: Never operate the unit with the high pressure cut-out switch short circuited, even in an emergency.

C. If the engine fails to crank when shorting across the two terminals marked "Control Switch," the trouble probably lies in the engine automatic control box or the ignition wiring.

D. Remove the ignition wires from the top terminal post marked "Ignition" on the left side of the engine automatic start control box. **Caution:** Make sure these wires are removed to prevent the engine from starting before proceeding.

E. Reach across the clutch drive to the starter solenoid switch, and press the manual starter button on this switch. The circuit from the battery is now direct to the starter and the starter should operate. If the starter does not crank, the battery is dead or the starter Bendix drive is broken. In either instance, it will be necessary to replace the defective unit.

F. If the starter cranks properly when this manual button is pressed, the fault then probably is a defective relay in the automatic start control box.

G. As a further check, remove the wire from the terminal labeled "Magnetic Start Switch" on the automatic start control box and place it in contact with the wires on the terminal marked "Battery." This terminal is the top one of the right side of the control box. If the engine now cranks properly, the relays in the control box are defective.

H. If relays in the control box are defective, it is recommended that the entire box be replaced by a new one rather than attempt repairs in the field.

Sees Tough Competition Ahead, Radio Producer Cuts Number of Models

CHICAGO — Hallicrafters Co., one of Chicago's largest radio manufacturers, has announced that it will produce only seven or eight of the 14 "Ecophone" home receiver sets shown to dealers a year ago.

"The intense competition developing in the home receiver market with dozens of new manufacturers entering the field means a too bitter struggle for mere existence," company officials explained.

Estimating that there will be 250,000 short wave radio "hams" in the country in the next five years, President William J. Halligan said that the company would put greater emphasis on short wave receivers and transmitters.

For the year ended, Aug. 31, 1946, Hallicrafters estimated its profit at \$300,000 to \$350,000 as compared with \$571,778 a year ago.

Brunner Nets \$125,592 For 7-Month Period

UTICA, N. Y. — For the seven months ended June 30, Brunner Mfg. Co. here announced a net income of \$125,592, or \$1.14 each on 100,000 common shares. Net sales totaled \$2,098,841.

Net income for the year to Nov. 30, 1945, was reported as \$88,820, or 81 cents each on 84,996 common shares. Net sales for this period were \$3,306,633.

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**no more contact
maintenance!**



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Never need Cleaning, Filing, or Dressing**

You can say goodbye to contact maintenance when you install Allen-Bradley solenoid starters on your air conditioning or refrigeration equipment. Any oxides that may form on these contacts are good electrical conductors. Hence they operate throughout their entire life without maintenance—an important feature on installations where the electrical equipment receives little or no attention. Furthermore, Allen-Bradley solenoid starters have only one moving part. They have no pivots, hinges, or bearings to cause trouble. Write Allen-Bradley Company, 1313 S. First St., Milwaukee, Wis.

BULLETIN 709

Size 2, across-the-line solenoid starter with cover removed to show simple mechanism. The white interior reflects light, illuminating the starter in dark corners. Note generous space provided to make wiring easy.



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#304	3/4"	.028"	37'	16.50	10,000
#304	1 1/2"	.028"	30'	17.80	60,000
#304	5/8"	.028"	32'	18.50	5,000
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Tubing is atomic hydrogen welded, annealed, pickled and passivated and is ideal for use in refrigeration, beverage dispensing, water cooling and many other applications. Available only in full crates holding approximately 2,000 feet. Orders will be shipped in the sequence received.

Box 2103, Air Conditioning & Refrigeration News.

Coast Contractor Solves Material Shortage To Install Difficult Replacement System

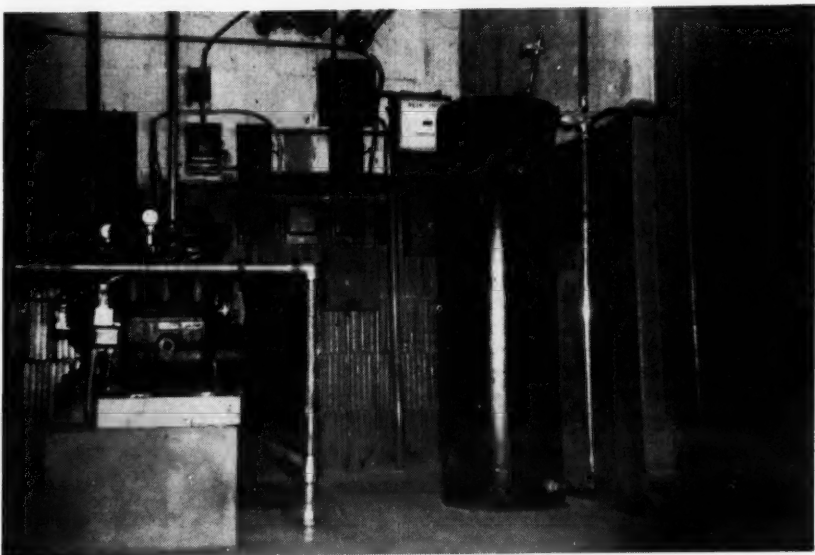
By Donald F. Daly

BERKELEY, Calif. — A refrigeration installation just completed by the Pacific Marine Refrigeration Co. of 401 Latham Square Bldg., Oakland, Calif., may be typical of the sales and service opportunities that will be open to dealers and contractors as soon as building owners are able to replace their worn out and out-moded equipment with new, modern plants.

This job was in the University of California's "International House" at Berkeley. Built in 1931 this class A structure has 400 rooms and kitchen facilities for feeding 600 people. The meals are served cafeteria style. The refrigeration system was an ammonia plant with brine circulation to all refrigerated spaces.

The plant consisted of a 15-hp. Cyclops compressor pulling on a single coil in a brine tank. The brine tank had approximately 1,500 ft. of 1 1/4 in. pipe coil and cans for making 1 ton of ice. In the same room with the brine tank and compressor was a power saw, an ice crusher, and an ice storage room of 800 cu. ft. Also on the basement level was a water cooler to supply drinking water to the cafeteria.

The main sections of the refrigerated rooms are in the form of a square in the center of the kitchen. This square is 20 ft. x 20 ft., and access to the rooms is from three sides. The blank side being on that part of the kitchen containing the



A corner of the storage room showing the compressor, electrical equipment, and accumulator tank.

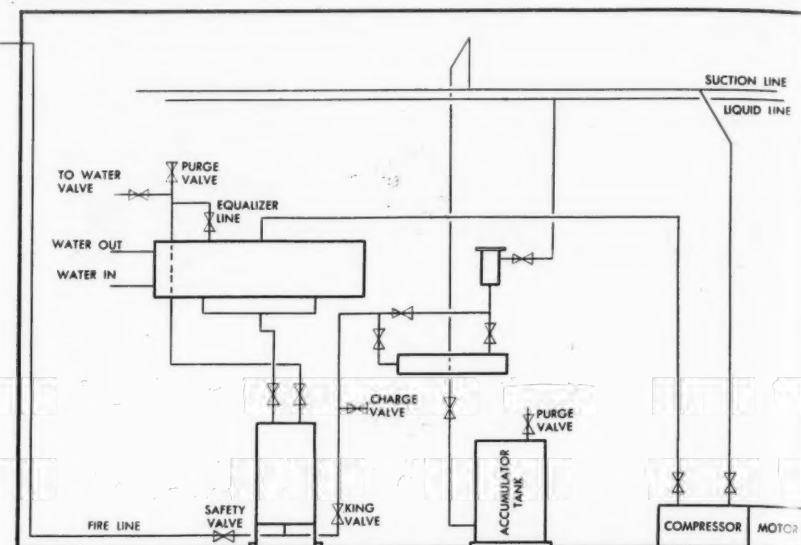
stoves and steam cookers.

On one side is a vegetable room of 540 cu. ft., and a dairy room of 620 cu. ft. Another side has a meat room of 860 cu. ft., and a vestibule of 580 cu. ft.

The remaining side is taken up by two two-door reach-ins of 280 cu. ft. each. Elsewhere in the kitchen and cafeteria are a six-door reach-in of 400 cu. ft., a two-door reach-in of 260 cu. ft., and a four-door reach-in of 300 cu. ft.

There are also two salad pans of 16 sq. ft. each. These rooms and reach-ins are tile inside and out, except for the upper portion of the boxes which had housed the brine coils. In this space the cork was exposed except for a thin layer of asphalt sealing compound.

The original contract called for the replacement of all brine and ammonia piping, and any other work that might be needed to put the plant in first class operating condition. But



This is a layout of the engine room.

before the replacement work was started the building authorities decided to change over to "Freon-12." It seemed that, while the ammonia plant had never given any trouble, leaks in the brine piping had been a source of much annoyance.

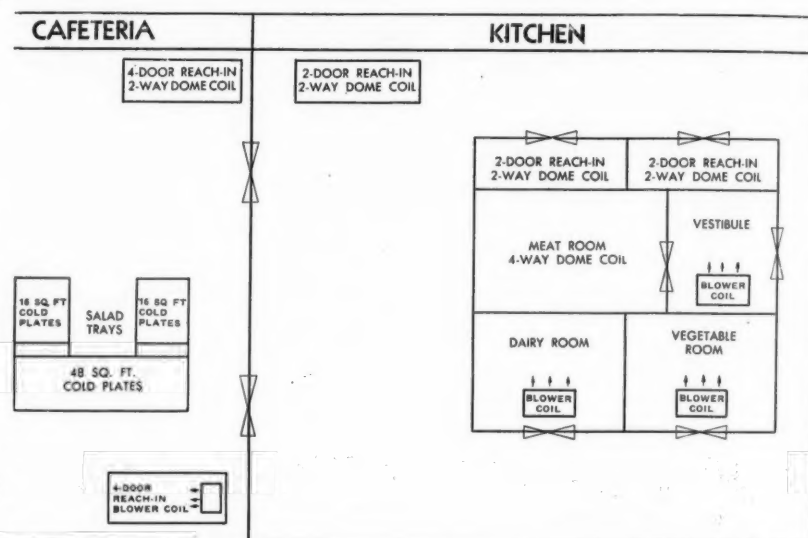
The decision to change over to a low pressure installation posed a rather difficult problem for the Pacific Marine Refrigeration Co. Their first estimate for the new layout called for a multiple unit installation.

The ammonia plant had been 15 hp., but it was over capacity. So they

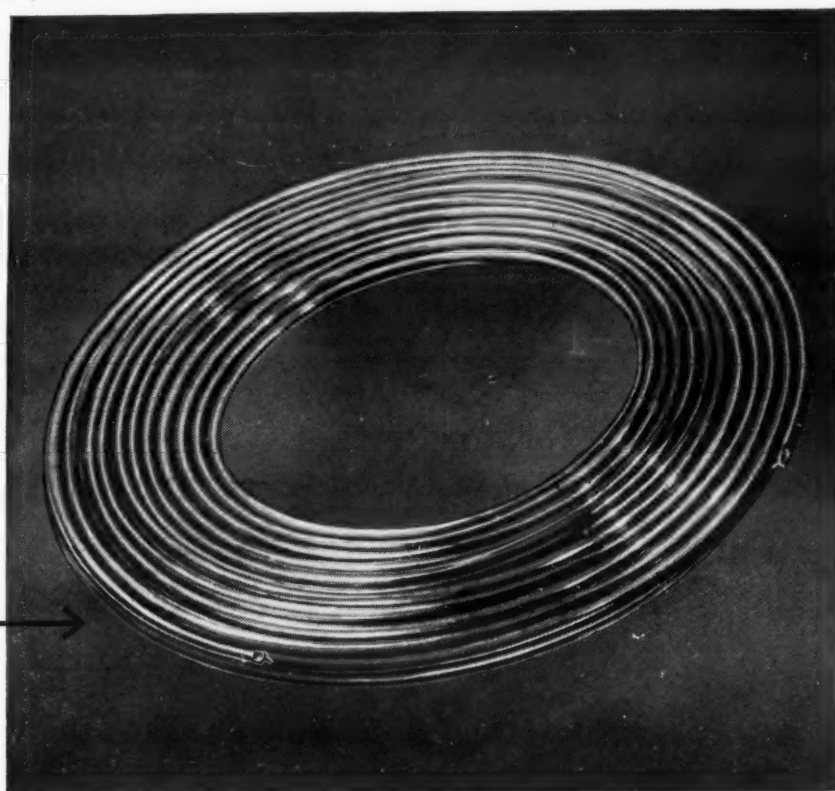
figured it would be better to split the refrigerated fixtures up into four sections, according to the temperature of the various rooms, and put in four 2-hp. units. They soon found that such units were not available.

They were finally able to obtain a York 4 x 4, three-cylinder compressor, with York condenser and all fittings. This unit would have approximately the same tonnage rating as the old plant and they could use the same motor, and the same motor and compressor base.

They could also use the same water (Concluded on next page)



In the layout of the fixtures in the kitchen and cafeteria there are separate circuits to the three salad trays.



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An all-around shop-use device that correctly indicates refrigerant charge for both vapor and liquid charging, and eliminates the tank-holding hazard. This valuable time-&-labor-saving unit has aided hundreds of service men to standardize their service techniques.

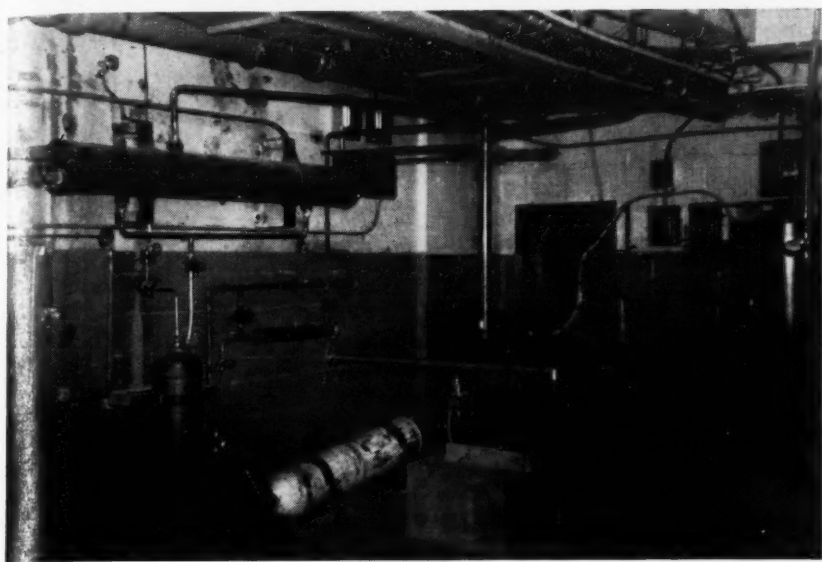
Thermostat Tester
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A precision pocket-size Tester that detects and analyzes thermostat defects without removing the control from the cabinet. Quickly indicates cut-in and cut-out temperatures and saves blind tampering with the thermostat controls. Standard for servicing all makes of refrigerators.



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Here is a view of the piping hook-up in the Cafeteria's compressor room.

Despite Shortages, Crew Finished Job In 10 Days

(Concluded from preceding page)

pump and cooling tower. There was much discussion as to how this large unit would perform with so many small coils. After careful estimating, and a thorough job of engineering, it was decided that it would work all right.

All rooms and reach-ins are cooled by blower coils (Re-Cold). The salad pans and a small fish chest are cooled by cold plates (York). A 100 gallon water cooler (Day & Night) was installed to replace the old brine-cooled water cooler. Two more salad pans of 24 sq. ft. each were installed, and provision was made to add a large blower coil to cool a vegetable storage room in the basement.

The blower coils and most of the valves and fittings were supplied by Rauch & Monroe of Oakland, Calif. The copper tubing and some of the fittings were supplied by the Pacific Metals Co. of San Francisco. However, neither of these organizations could furnish all of the material.

The P. M. R. Co. was working against a time limit with quite a stiff penalty if they failed to complete the job on time. It took a lot of digging to get all of the needed material, but this digging was done by two experts at that sort of thing—Alex Johnston, owner and operator of the firm, and Fred Cook, his engineer and construction superintendent.

By using 2 in. x 6 in. boards as a frame it was possible to utilize the same bolts that had supported the brine coils to hang the blower coils. All blower coils have Alco solenoid valves in the liquid line and are controlled by White-Rodgers room thermostats. Alco Thermo-Limit expansion valves were used on all coils. The solenoid valves and expansion valves have flared connections. All other connections are silver soldered.

Shut-off valves were used in the suction and liquid lines leading to each coil to facilitate making repairs. All copper tubing is hard drawn. On the salad pans solenoid valves were not used in the liquid line, but Alco Evaporator valves were installed in the suction line. The water cooler had a White-Rodgers thermostatic control which actuated a solenoid valve on a pilot operated Alco Evaporator pressure valve. This gave double protection to this fixture.

All suction and liquid mains were

run one or two sizes oversize to insure ample capacity, and to provide for future additions. Some of the piping in the kitchen and cafeteria was run outside the boxes. This meant that all exposed piping had to be installed with great care to give a pleasing and workmanlike appearance to the job.

It was quite a job to figure out hangers on the tile surfaces. Wherever possible the hangers that had supported the brine piping were used. All liquid and suction mains were run full size to the end of the run.

Pipe sizes were not reduced, as is the usual practice in such cases, when a fixture is taken off. When possible the liquid line was bonded to the suction line to give additional support to these small lines.

The hook-up in the compressor room was conventional in every respect. A large accumulator tank (90 gal.) was installed near the compressor, off the suction line, to prevent short-cycling. The motor is low speed (1,160 r.p.m.) and the pump was pulleyed to turn at 485 r.p.m., which is somewhat slower than the usual speed of this model York compressor. A horizontal shell and tube condenser, and a vertical receiver of sufficient capacity to hold the entire charge, was used.

A large (McIntire) dehydrator was installed in the liquid line, and a large strainer just beyond the dryer, but above the by-pass, so the liquid would pass through the strainer at all times. By-passes and shut-off valves were used wherever necessary to insure efficient operation of the plant, and to facilitate making repairs.

Due to the delay in getting the O.K. for the new plant and the difficulty in finding some of the material, the heat was on throughout the entire period of installation. We had just 10 days in which to get the plant into operation. A crew of eight men were kept jumping to accomplish this. The busiest men on the job were the material hustlers, Alex Johnston and Fred Cook.

There wasn't time to evacuate the system and dry it out in the usual careful manner, but good results were obtained by blowing "Freon" through the lines and coils. In testing for leaks we would fill the system with "Freon" gas, off the top of the drum, then build up the pressure with CO₂ and allow to stand until we had gone over the lines with a halide torch.

Very few leaks were found, but we repeated this process three times.

We then pulled a vacuum on the system with the compressor and charged to capacity. It took 160 lbs. of "Freon" to charge the job. In testing for leaks we used about 30 lbs. of "Freon" and one drum of CO₂.

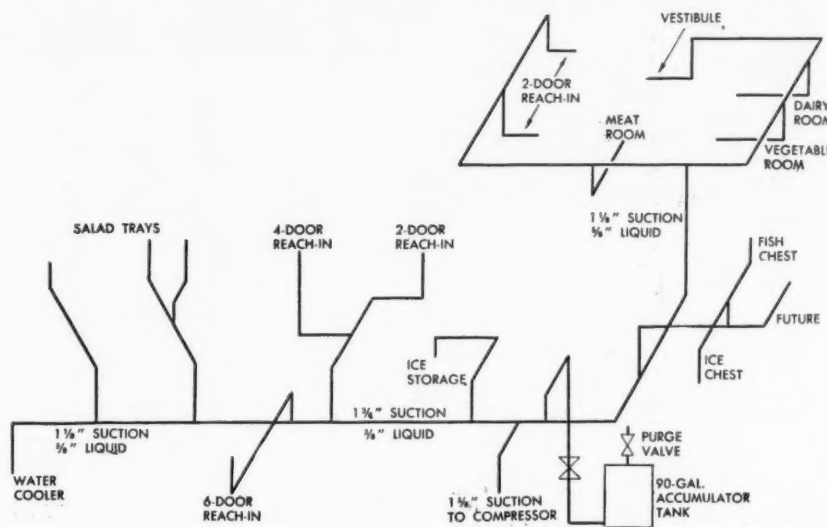
The plant went into operation with very little trouble and a minimum of adjusting was required. We got the plant going just before noon, and by quitting time the small boxes were down to temperature. When we came in the next morning all fixtures were down to temperature and the plant was on a normal cycle.

It had been thought that the unit would short-cycle with such a large compressor, but thanks to the large accumulator tank, no such trouble developed. The unit did take a somewhat shorter cycle than was desired when we first started up, but as soon as the entire load was on the line it leveled off and performed to the satisfaction of all concerned. In fact the plant went into operation with the least trouble I have ever encountered on an installation of this size and complexity.

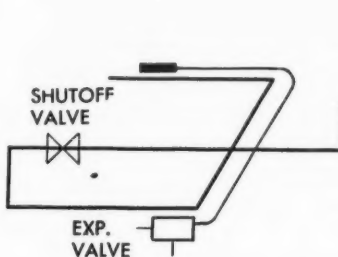
One reason why the plant operated so evenly was that all refrigerated fixtures were within a narrow temperature range. With 15 fixtures on one unit we had a maximum temperature range of from 30° for the meat box, to 38° for the baker's reach-in. This was accomplished by installing separately a York Model D-E-R 10, Flakice machine.

If it had been necessary to put an ice maker, with its lower temperature, on the main unit it might have resulted in an unbalanced condition. Another saving made possible by keeping within this narrow temperature range was in pipe covering. None of the lines were cork covered.

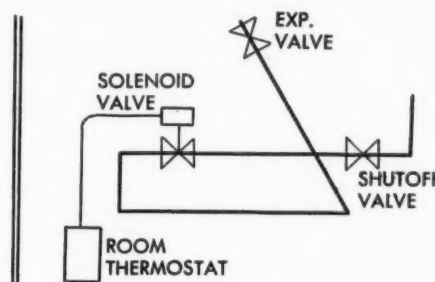
How Suction, Liquid Lines Were Layed Out



Layout of the suction and liquid lines in the basement. Wherever possible the liquid line was bonded to the suction line for additional support.



A typical suction line hookup at the blower coils.



A typical liquid line hookup at the blower coils.

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Over-powered motor insures extra heavy duty. Handsome, all-steel cabinet finished in hand-rubbed grained walnut. Easy to install and easy to operate.

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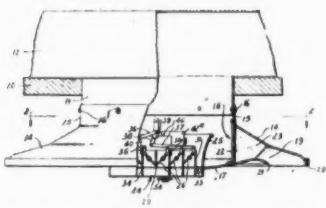
Several choice distributorships still open. Inquiries invited from dealers. Leonard Turnbull, National Sales Representative, can be contacted during All-Industry Exposition at University Club, Cleveland; or write

Specialties Distributing Co., 525 E. Jefferson Ave., Detroit 26, Michigan. Telephone RAndolph 6111.

PATENTS

Week of Sept. 10

2,407,284. **AIR DISTRIBUTION OUTLET.** Walter W. Kennedy, Rockford, Ill., assignor to Barber-Colman Co., Rockford, Ill., a corporation of Illinois. Application June 20, 1942, Serial No. 447,853. 7 Claims. (Cl. 98-40.)

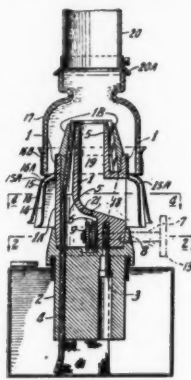


1. In an air distributing unit, the combination of a tube providing an air discharge outlet, a plurality of plates extending transversely of said tube and dividing said outlet into a plurality of separated openings extending parallel to each other, damper vanes each pivotally supported in one of said openings to turn about a longitudinal axis disposed intermediate the side margins of the vane, means connecting said vanes and operable to swing the vanes in the two halves of said outlet simultaneously in opposite directions between an open position paralleling the axis of the inlet and a closed position in which the vanes of the two sets extend diagonally toward each other in the direction of air flow through the outlet.

2,407,426. **KEROSENE BURNERS FOR USE IN REFRIGERATORS OR IN OTHER HEAT-ACTUATED APPARATUS.** George Ellis Jodell, Frahan, Victoria, Australia, assignor to Electrolux, Pty., Ltd., Sidney, Australia, an Australian company. Application Aug. 2, 1944, Serial No. 547,715. In Australia Aug. 18, 1943. 4 Claims. (Cl. 158-94.)

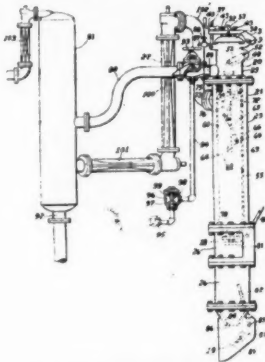
1. In a wick type kerosene burner, the combination with a kerosene tank of a

composite body for guiding the wick from the interior of the tank upwardly to a level considerably above the top of the tank, said wick guiding body including a lower portion consisting of a plastic of low heat conductivity and extending from the interior of the tank to a level a short



distance above the top of the tank, and an upper thick-walled cast metal portion seated on said lower portion.

2,407,482. **APPARATUS FOR FREEZING.** Frank B. Doyle, Phillipsburg, N. J., assignor to Ingersoll-Rand Co., New York.



N. Y., a corporation of New Jersey. Application Oct. 28, 1943, Serial No. 507,993. 5 Claims. (Cl. 99-240.)

1. Apparatus for processing vegetable material and the like, comprising a casing having a plurality of chambers to receive the material successively for different steps of treatment, means operable manually from the exterior of the casing for effecting the discharge of material from one chamber into another, and means for evacuating the chambers and maintain a vacuum in the said chambers during the transference of material from one chamber to another.

Week of Sept. 17

2,407,721. **REFRIGERATING APPARATUS.** Carl H. Nauert, Evansville, Ind., assignor to Servel, Inc., New York, N. Y., a corporation of Delaware. Application March 23, 1944, Serial No. 527,685. 10 Claims. (Cl. 211-153.)

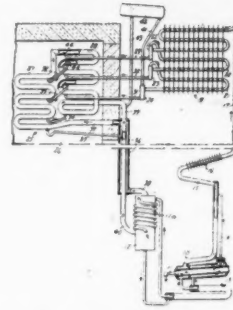


2. A food supporting shelf for use in domestic refrigerators comprising a rectangular outer frame constructed of an inwardly-facing channel member with inwardly extending flanges on one face thereof, a plurality of thin strips spanning the space between two sides of said frame and having end portions bearing against said flanges and extending into said channel member, individual spacing blocks mounted in said channel member and supported on the flanges and located between the ends of each pair of said strips, and a reinforcing member connected between two other sides of said frame.

2,407,733. **TWO TEMPERATURE EVAPORATOR FOR INERT GAS TYPE ABSORPTION REFRIGERATORS.** Carl T. Ashby, Evansville, Ind., assignor to Servel, Inc., New York, N. Y., a corporation of Delaware. Application May 15, 1941, Serial No. 393,558. 18 Claims. (Cl. 62-119.5.)

1. A refrigeration system having a plurality of parts in which evaporation of refrigerant liquid occurs to produce refrigeration, means for flowing inert

gas through said parts in series, means providing thermal insulation between a first of said parts on one hand and others of said parts on the other, and means for



simultaneously introducing liquid refrigerant individually into said other parts, said first part being connected and arranged to receive liquid from said other parts.

(To Be Continued)

250-Ton Air Conditioning System Sells for \$17,000

DALLAS, Tex.—Sale of the 250-ton central station air conditioning system in the Continental Motors Corp. plant at Garland to Alford Refrigerated Warehouses, Dallas, for \$17,000 has been announced by George McBlair, chief, hardware, plumbing, and general products sales division of the Dallas regional office of War Assets Administration. Cost of removing the system is estimated at \$4,000.

The system is designed for cooling with chilled water circulating through pipes to 10 air conditioning units and was recommended for any space from 20,000 to 100,000 sq. ft.

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RATES for "Positions Wanted" \$2.50 per insertion. Limit 50 words.

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POSITIONS WANTED

REFRIGERATION MANUFACTURERS—do you want a live wire representative for Texas? One who has years of experience and knows the business, will consider equipment, air conditioning, refrigerated fixtures and freezers. Box 2077, Air Conditioning & Refrigeration News.

SERVICE MANAGER 23 years in refrigeration service field, commercial and domestic. Thoroughly familiar with theory and practical work. Am competent to operate service department with profit to you. Can handle correspondence courteously and efficiently. Am at present unemployed. Prefer southwest, but consider anywhere. BOX 2097, Air Conditioning & Refrigeration News.

AIR CONDITIONING and refrigerating engineer, qualified in all classes of field application, unit design and metal fabricating, desires position with distributor or manufacturer in Santa Fe—El Paso—Phoenix area. Have executive and sales ability and knowledge of Spanish language. Please reply BOX 2101, Air Conditioning & Refrigeration News.

REFRIGERATION EXECUTIVE with unusual record of achievement in commercial field. Has demonstrated ability over many years to organize and conduct a complete program on a national scale. Well grounded in both engineering and sales. Can arrange for interview at Cleveland meeting. BOX 2104, Air Conditioning & Refrigeration News.

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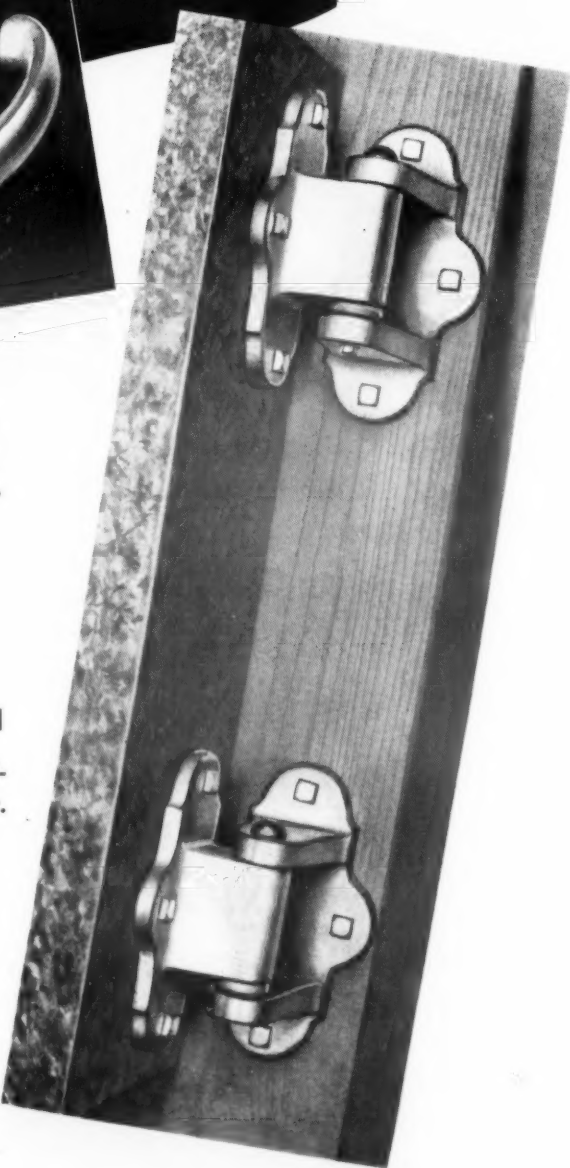
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Refrigeration Problems And Their Solution

By P. B. Reed

For Service and Installation Engineers



Manager, Refrigeration
and Air Conditioning
Division, Perfex Corp.

Stage Compression In Refrigeration (Part 1)

Two or three stage compression has been a rather common practice in industrial systems for some time, but has only come to prominent attention in the so-called low pressure field within the past few years, especially during the war, for ultra-low temperature application.

To get an understanding of why stage compression is advantageous and often necessary in low temperature work, requires a good knowledge of the nature and properties of refrigerants and a better understanding and recognition of some losses that occur in a refrigerating system; losses that might be disregarded or at least permitted in a high temperature system such as an air conditioning installation or even a medium temperature, walk-in cooler for storage of fresh meat, yet would be fatal to a low temperature application having evaporator temperatures of -35 or -40° F. or lower. And the lower the temperature the faster the problems pile up.

TROUBLES ARE MULTIPLIED BY LOW TEMPERATURES

There are many problems connected with low temperature applications: refrigerant control and distribution, lubrication, leaks, moisture, evaporator size and design and many others so numerous and so extended as to require a great deal of discussion.

Just now, let us consider only why stage compression is used and what it accomplishes.

WHAT 'COMPRESSION RATIO' IS

Stage compression is all tied in with "ratio of compression," by which is meant the ratio of discharge to suction pressure; or saying it another way, how many times the vapor going into the compressor is compressed when it leaves the compressor.

If the discharge is 10 lbs. and the suction pressure is 1 lb., the ratio of compression is 10 to 1. Or if the discharge pressure is 100 and the suction pressure is 10, the ratio of compression is still 10 to 1.

In figuring ratio of compression the suction and discharge pressures must be expressed in absolute pressure. In the above examples the 10 lbs. per square inch absolute would corre-

spond to 10 in. of vacuum on the gauge and the 1 lb. per square inch absolute (p.s.i.a.) would correspond to about 28 in. vacuum on the gauge.

To study this let us take as an example an air conditioning installation operating with a 40° F. evaporator or 37 lbs. per square inch gauge and at a discharge pressure of 141 lbs. per square inch gauge. Since atmospheric pressure is approximately 15 lbs. per square inch and since ordinary pressure gauges read in pounds per square inch above atmospheric pressure, 15 must be added to the 37 lbs. and 141 lbs. to convert the suction and discharge pressures given above to absolute pressure; so they will be 52 and 156 p.s.i.a. respectively.

Then the ratio of compression will be 3 to 1 (156 ÷ 52 is 3) that is, the discharge pressure is three times the suction pressure.

Fig. 1 shows a cylinder and piston of a single cylinder refrigeration compressor with suction and discharge valves. It has an inch bore and an inch stroke so theoretically it should pump .7854 of a cubic inch for every compressor revolution, resulting in the piston going down once (the suction stroke) and going up once (the compression stroke).

VOLUMETRIC EFFICIENCY

In actual practice, refrigerating compressors do not pump 100% of what they theoretically could pump, based on the displacement of their cylinders. As a matter of fact, it is a fairly good compressor that on medium temperature applications will pump four-fifths or 80% as much.

This per cent of actual volume of vapor pumped to the displacement is known as the volumetric efficiency of the compressor.

SOME OF THE CAUSES OF LOSSES

There are a number of causes of this loss of 20%. One is that the discharge valve action is not perfect and some of the high pressure discharge gas that is supposed to be trapped in the condenser slips back into the compressor cylinder while the discharge valve is closing.

Also, the suction valve does not open as soon as it theoretically could and the cylinder is robbed of just that much vapor. Some of the compressed vapor leaks by the piston and gets back to the crankcase and the suction line.

Then there is the "clearance volume" which is the waste space around the top of the cylinder. Composing this waste space are the passages to the discharge valve, the irregular space around the suction valve and around the edge of the piston and the space between the top of the piston and the top of the cylinder.

This last space may be a considerable factor. Some clearance between the top of the piston and the cylinder head must be left in order to take care of oil or possible liquid refrigerant and so that the piston does not strike the cylinder head, suction valves or valve plate.

Furthermore, some inaccuracies or "tolerances" in manufacture must be permitted even though they may be so small as to be measured in the thousandths of an inch. On this cylinder of 1 in. bore and 1 in. stroke, a clearance of five thousandths would not ordinarily be excessive, but this .005 in. alone would represent a clearance volume of about .004 cubic inch, or one half of 1% of the total volume of the cylinder.

Other "waste" clearance volume identified above could easily account for another 1 or 1½% making a total of as much as 2%.

THE TRAPPED GAS RE-EXPANDS

When the piston comes to the top of its stroke, it has done all the compressing it can do and all of the high pressure gas should pass on into the condenser. But the high pressure compressed gas in the clearance volume stays there and it is at full discharge pressure.

When the piston starts back down

Where Re-Expansion Takes Place

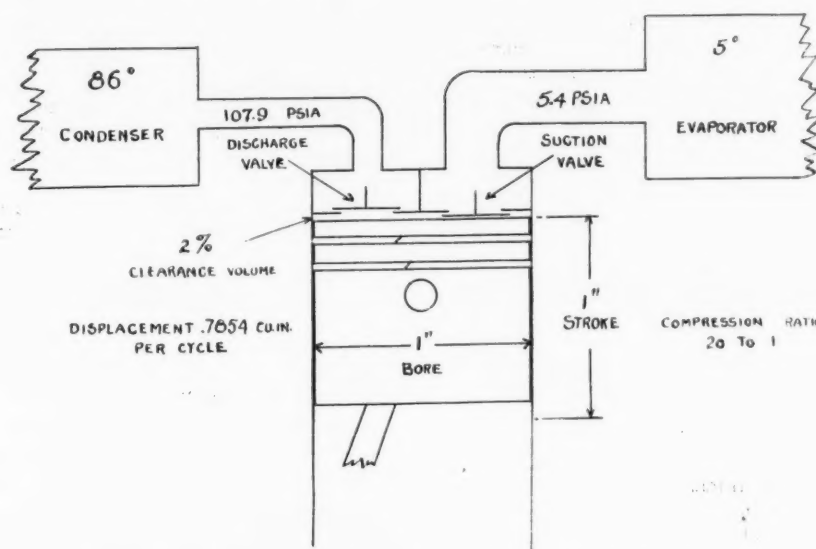


Fig. 1. Losses caused by re-expansion in the clearance spaces are highly important when compression ratios are high.

on its suction stroke, this high pressure gas expands and its pressure drops as it does so. If the discharge pressure is 100 p.s.i.a. and the suction pressure is 20 p.s.i.a. the high pressure gas would have to expand five times, (ratio of compression of 5 to 1) until its pressure gets down to 20 p.s.i.a., and it must be remembered that until the trapped gas pressure gets below suction pressure no suction vapor can flow from the suction line into the compressor. Even then the flow into the compressor will be slow. The number of times the trapped

vapor will expand determines how long the suction vapor in the suction line must wait before it gets in, that is, the ratio of compression determines how much of the cylinder is wasted.

The higher the ratio of compression, the more of the cylinder that will be wasted, and the greater will be the total loss of efficiency of the compressor and consequently the lower will be its volumetric efficiency and its refrigerating capacity.

(To Be Continued)

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Wage-Hour Case--

(Concluded from Page 1, Column 3)

This decision, which the contractor plans to fight in the Federal courts, means that the contractor will have to start paying time-and-a-half after 40 hours instead of after 48 hours in a week as he now does, and further that he must make restitution to all the employees affected of the money that would be owing them for the past four years had they received time-and-a-half after 40 hours. Thus, the contractor will have to pay each employee affected more than 800 hours of back pay, less deductions for income tax and old age benefits.

Employees whose work is limited to installation and servicing of household refrigerators are not covered by the law, unless, of course, they cross a state line.

Virtually all other work, such as commercial and industrial refrigeration and air conditioning installation and servicing, comes under provisions of the law, according to the latest decision of the Detroit branch of the Wage-Hour division.

This new decision is almost a complete reversal of one made two years ago, points out a Detroit attorney. At that time it was decided by the wage-hour division, at least in Detroit, that the only refrigeration installation and service work covered by the act was that performed in an establishment obviously engaged in interstate commerce, such as a large automobile factory, the attorney said.

Conference Planned

Although household refrigeration installation and servicing in private homes is clearly exempted from coverage by the act, this Detroit contractor will be forced to hold a special conference in this regard with officials of the local branch of the wages and hours divisions.

The two investigators who spent better than two full days interviewing virtually all employees at the firm claim that the payroll records do not make a clear distinction between employees' time spent on household work and that spent on commercial and air conditioning work.

It is important to note that the Fair Labor Standards Act provides that an employee's entire work week is covered by the act if he devotes only a fraction of that week to work that can be classified as interstate commerce.

In the presence of a representative of AIR CONDITIONING & REFRIGERATION NEWS, Thomas A. Hermansen, manager of the Detroit branch of the wages and hours division, instructed the investigator on this case to give the contractor all possible benefit of the doubt and to accept any "reasonable proof" that certain employees had been engaged solely on household refrigeration work.

Besides these findings, the investigators also told the contractor that three employees whom he had considered as "executives" and thus exempt from coverage were not executives and therefore come under the act. The back pay involved with these three employees may be considerable.

Basis for Decision

Basis for the decision of the Detroit wage-hour division that this contractor is engaged in interstate commerce is found, according to Mr. Hermansen, in "opinions" issued by legal staff of the division in Washington, D. C., headquarters.

In answer to a question by the NEWS as to why the Wages & Hours division has decided that this refrigeration contractor or any installer of refrigeration equipment comes under the law, Mr. Hermansen said that "Legal Field Opinion Letter No. 74" issued by the headquarters staff covers that. He outlined this in a letter to the NEWS as follows:

"All employees who are engaged in installing any of the type of equipment you mentioned (aside from construction material such as roofing, siding, insulation, rock wool, etc.), which is sold after being received directly from other states, are performing work incidental to the sale and are, therefore, covered by the act as being engaged in furtherance of an interstate transaction.

"This transaction is likewise applicable to employees installing such items pursuant to an interstate contract of sale which is one involving or necessarily contemplating the movement of goods across a state line.

"With respect to employees engaged in servicing items after they have been installed, it is our opinion that where employees are engaged solely in

servicing items within the same state where such items have been distributed and installed, the act does not apply.

"If, however, the situation is such that the servicing is properly to be regarded as incidental to the completion of an interstate contract of sale, as explained above, employees engaged in such servicing activities are covered.

"A typical situation of the latter type would be one in which the contract of sale contemplated that the goods would be shipped in interstate commerce or necessarily involved such interstate shipment of goods, and obliged the vendor to furnish service for a period of time after the item was installed."

This last paragraph obviously would cover service work performed during the warranty period if the

item being serviced had been manufactured out of the state and was guaranteed by the manufacturer.

Another important "opinion" which has been issued by the Wages and Hours division is contained in Interpretive Bulletin No. 6. This pertains to the inclusion of service establishments under the act.

"Service establishments are usually local in character, are usually open to the general consuming public and usually render a service to private individuals for direct consumption. The service is usually purchased in small quantities for private use rather than for industrial and business purposes. . . . Typical examples of service establishments akin to retail establishments, with the means of the exemption are: restaurants, hotels, radio repair shops, household refrigerator service and repair shops. . . ."

Commenting on this interpretation, the National Association of Refrigeration Contractors, which has been investigating the status of contractors under the wage-hour law and will discuss the problem at length during its meeting in Cleveland this week, stated in the NEWS of Sept. 9:

"From the foregoing, it is clear that service establishments generally repair consumer goods owned by the general consuming public. In some cases, however, an establishment repairs the type of goods which the general consumer public ordinarily does not own—production machinery, commercial refrigerators, etc. Such establishment may not be considered as service establishments for the same reason that establishments engaged in selling goods which only an industrial or business market are not considered retail establishments.

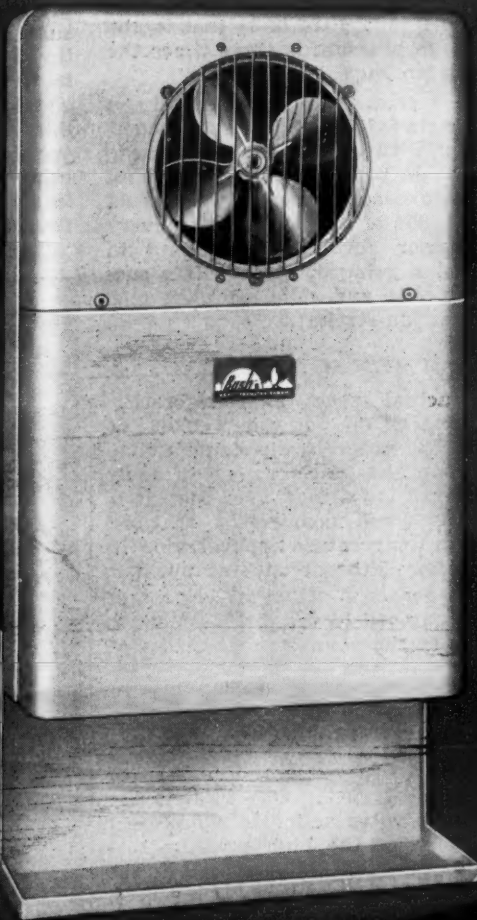
"There is no doubt at all that employees working on household refrigeration service are exempt from the act," continues N.A.R.C.

"In interpreting the act this way, it might well seem as though the Wage and Hour division is going rather far afield, and it may take a court test to decide the issue on service establishments whose business is mostly commercial in nature, mostly intrastate, and for the most part firms whose business is intrastate."

There is a remote possibility that the Wage and Hours division might drop the charges before the contractor actually takes the case into court, hinted Mr. Hermansen.

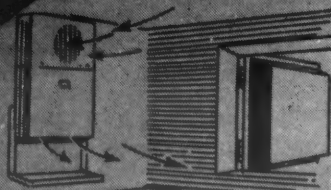
"Sometimes," he said, "when the legal division decides it doesn't want to go to the expense of fighting the case in court, we have to drop the matter."

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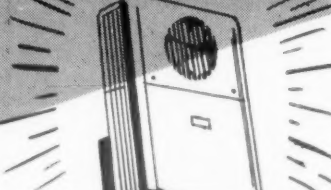
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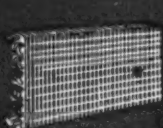
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